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VOLUME 127, NO. 23 DECEMBER 2, 1948

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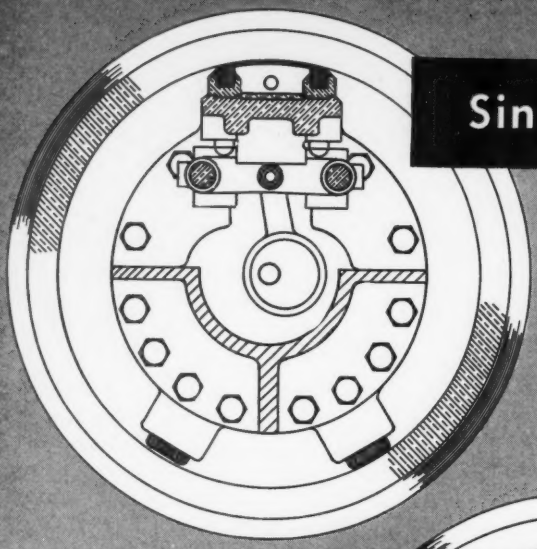

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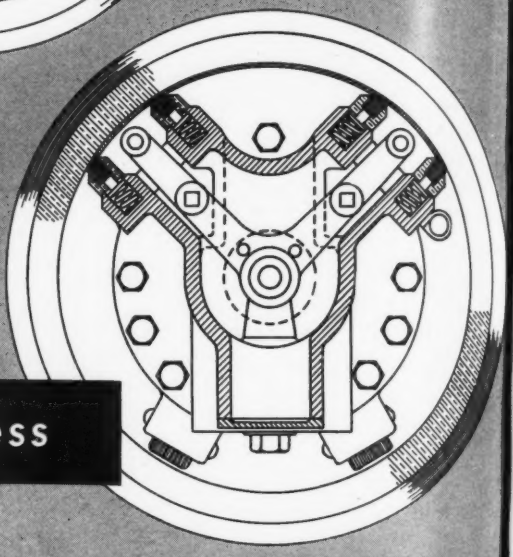

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MEMBER

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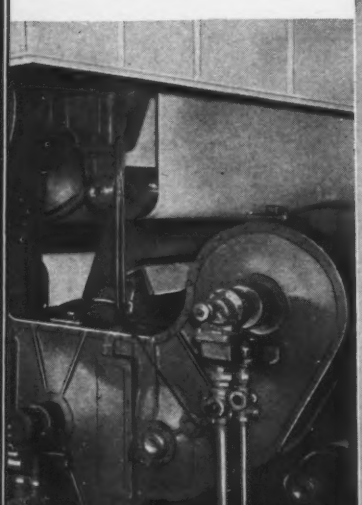

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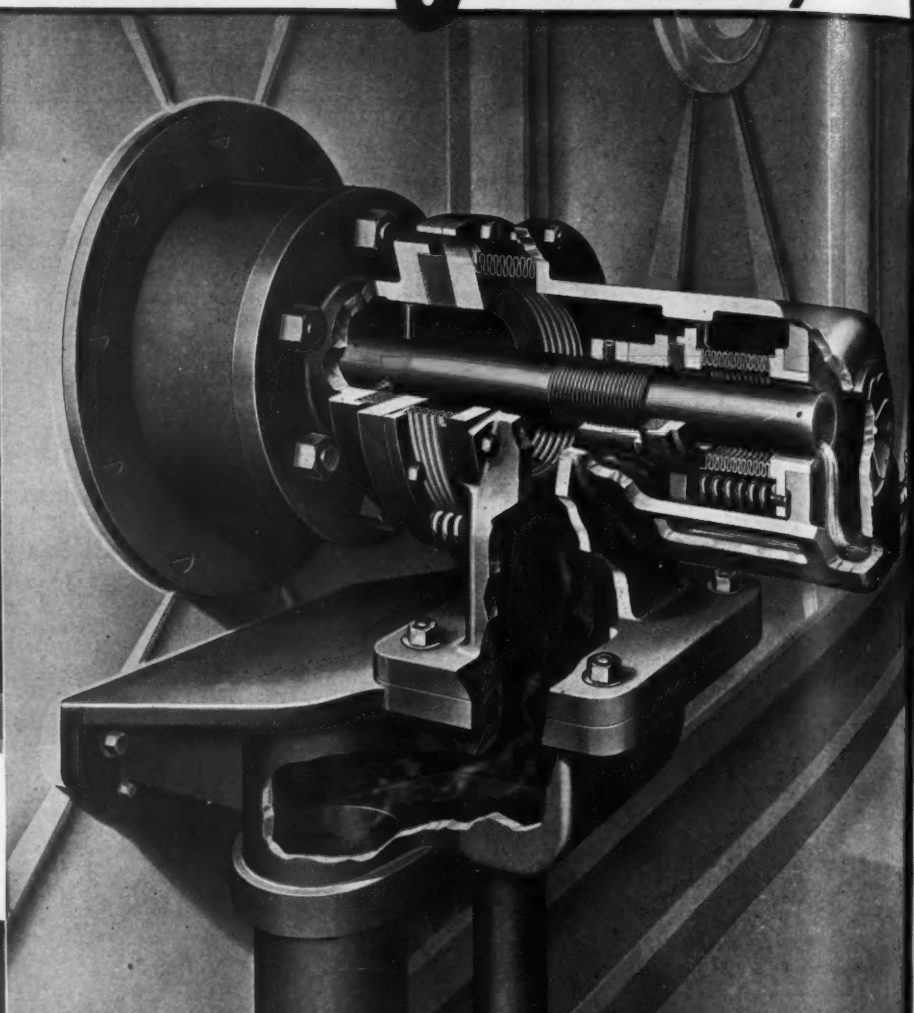

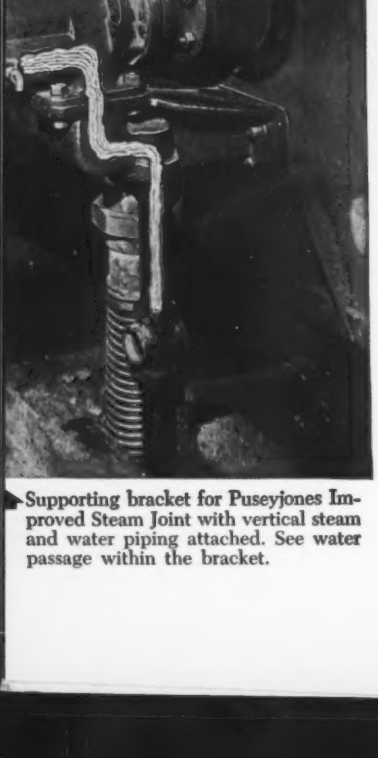

Supporting bracket for Puseyjones Improved Steam Joint with vertical steam and water piping attached. See water passage within the bracket.

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VOL. 127, NO. 23

New England's Electric Power Resources Surveyed

BOSTON—A comprehensive survey of New England's electric power resources, the first undertaken since 1923 and a subject of especial interest to the paper manufacturing interests in the six-state area, was published late in November in an 84-page book by the New England Council.

While past studies have dealt with various phases of power supply and demand in New England, the present report, made for the Council's special Power Survey Committee by a Boston Engineering firm, constitutes the most complete single investigation in the region's history, according to Edgar H. Hunter, committee chairman and chairman of the New Hampshire Public Service Commission.

This study foresees the need for an increase in New England's generating capacity of about 1,100,000 kilowatts during the next ten years. This means the construction of about 110,000 kilowatts capacity a year. The capacity of plants now under construction is deemed by the committee sufficient to meet the anticipated demand of the immediate future.

In the foreword to "Power in New England," it is pointed out that today "New England water power, except in the state of Maine, has become of small importance as a basis for future industrial development or as a potential source of power for any purpose," although, the report adds, many people tend to magnify its present position partly because this type of power was a prime factor in the original development of the region's industrial communities.

"The total potential capacity of undeveloped water power in New England deemed practical to develop under suitable load conditions is about 420,000 kilowatts," the report said, "and of this amount the undeveloped Maine water powers (which cannot be regarded as available except in Maine) constitute 263,000 kilowatts. But even if all these undeveloped water powers were available and near enough to market, their complete development would supply only about one-third of the anticipated increase in New England demand over the next decade. It appears that most of the new generating plants to be built in New England, outside of Maine, must use fuel as a source of power."

The elaborately-documented report, based on data drawn from 23 different agencies including the Federal Power Commission and the Corps of Engineers, U.S.A., and containing numerous original studies as well, is illustrated with 54 graphs, tables and river profiles and four multi-colored folding maps.

"The study shows," continues the committee in its foreword, "that except in those industries using process steam, manufacturing establishments are depending more and more upon the utilities for their power supply. This trend again emphasizes the need for a consistent public policy which will encourage the electric utilities to provide generating facilities in anticipation of substantial future growth. Generally speaking, there appears to be an acceptance on the part of the industry of their responsibility in the public interest to create and maintain a power plant adequate for the needs of New England as a growing and prosperous region."

In seeking practical answers to present New England power problems, the committee reached some forthright conclusions:—

1. That the importance of the cost of power in most types of manufacturing has been greatly overemphasized.
2. That New England already has developed the best of its water power.
3. That projects like the TVA are not economically practicable in this area, and that such schemes as the Passamaquoddy project and the St. Lawrence River development would be of questionable value to New England consumers of power.

"It is fallacious," this report says, "to cite the cost of power as a major cause of industry's leaving New England to locate in areas where cheap power is available."

Supporting that conclusion with the findings of various extensive cost analyses, the committee reports that wide variations in the cost of power have little effect upon the competition for markets, in comparison with variations in wage rates, efficiency of labor and costs of materials in various sections of the country.

In the paper industry, for example, power costs represent 2.3 per cent of total costs, wages 27.9 per cent, taxes and kindred items 17.5 per cent, and materials account for the balance.

When the committees considered present consumption and probable future needs of power it found that slightly less than half the total power generated in New England is consumed by industry, and slightly less than one-quarter is used for domestic purposes. Of the balance, 13.2 percent represents commercial use, and 14 per cent loss by absorption in transmission and distribution.

The committee anticipated the future annual growth of industrial consumption at about four per cent. "However," the report warns, "the extent of industrial expansion in the future is uncertain. The rapid increases in con-

(Continued on page 38)

DOMESTIC PULP PRICES TUMBLING

Heavy supplies and slight demand started domestic wood pulp prices toboganning today. December, notably the month for absorbing inventory losses, brought notice of dips in Canadian Unbleached Sulphate and Bleached Sulphate of $10.00 and $12.50 a ton, effective immediately. Announcement of market price for the new brand of U. S. Bleached Sulphate at $136.00 is expected to precipitate further price reductions in that grade.

Price range for Canadian Unbleached Sulphate with varying freight allowances is reported at $115.00 to $125.00; for Canadian Bleached Sulphate, $147.50 to $150.00. U. S. Bleached Sulphate price ranges from $136.00 to $155.00. (These prices, effective December 1, are recorded on the *Prices* page with other fourth quarter quotations.)

Indication that 1949's first quarter will see a general drop in U. S. and Canadian wood pulp prices is seen in early announcements of kraft prices with increased freight allowances. The trek has begun to lowered levels which must become a further challenge to Scandinavian producers.

November Pulp and Paper Industry Report

By W. LEROY NEUBRECH

Chief, Pulp and Paper Section, Forest Products Div., Office of Domestic Commerce

The third quarter of 1948 marked the completion of most of the extensive new pulp, paper and board capacity and expansion projects inaugurated since the end of the war, although some additional installations are still under way or just in the preliminary stages. Besides, the industry has made great progress in its large scale mechanization program for pulpwood operations with the introduction of new modern logging equipment such as portable power saws, improved skidding and loading methods and devices, pulpwood trucks and in some instances specially designed pulpwood railroad cars.

These new or modernized facilities have made it possible for the industry as a whole to record a steady upward trend since the end of the war in the procurement of pulpwood and the production of pulp, paper, board and products, with the result that 1948 will establish an all-time output. Third quarter 1948 paper and board tonnage production was five percent greater than in the same quarter of 1947. The aggregate estimated value of sales of the industry, including converted paper products, was 11 percent above the third quarter of 1947, indicating the upward price trend of the past 12 months.

From 1945 to 1948, annual U. S. production of paper and board will have increased by 28 percent or at an average annual rate of about nine percent. Production in 1946 was 11 percent more than in 1945; in 1947 it was nine percent over 1946; in 1948 it will be about six percent over 1947. The year 1948 will record the end of the current sharply upward cycle underway since 1945. Henceforth, and barring any unusual circumstances, the production trend can be expected to fluctuate proportionately with the over-all level of business and economic activity. This does not mean, however, that 1949 output may not exceed 1948, but rather that the rate of change will be much less than in the preceding three years.

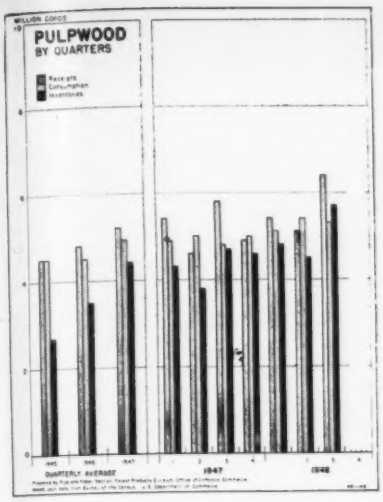
The foregoing observation is based upon an analysis of trends by grades set forth in the October Pulp and Paper Industry Report which clearly indicates that demands for some grades have been fully satisfied in past months, and with pipe lines having become adequately filled this year, actual output of many such items has been slightly less in recent months. It is believed that several other grades will soon disclose a similar "leveling off" pattern. In fact, except for kraft wrappings and bag stock, newsprint and some grades of tissue, reports from Commerce Department Field Offices

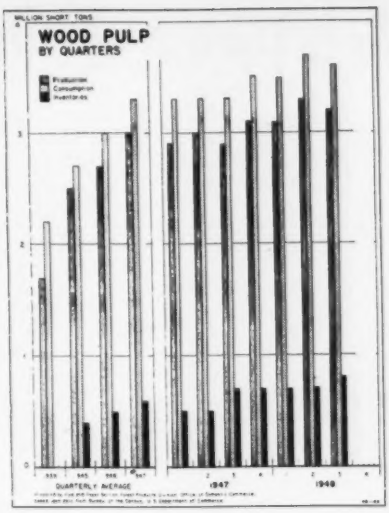
Quarterly Statistical Summary of the Pulp and Paper Industry

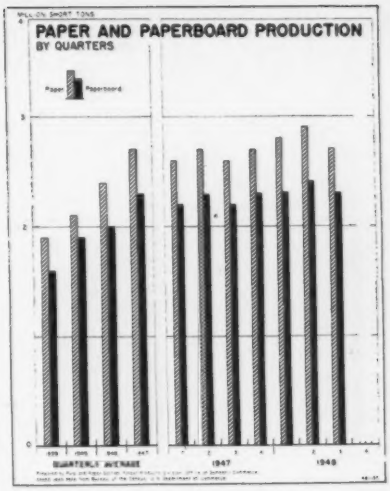
Item	1946				1947				1948		
	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd
Pulpwood (1,000 cords)											
Receipts	4,598	4,384	5,471	4,525	5,389	4,578	5,767	4,919	5,352	5,158	6,401
Consumption	4,104	4,541	4,487	4,686	4,891	4,995	4,823	5,028	5,101	5,379	5,323
Inventories 1/	3,117	2,942	3,956	3,780	4,255	3,816	4,736	4,566	4,790	4,543	5,605
Imports	418	340	634	336	330	397	649	453	456	472	660
Wood pulp (1,000 tons)											
Production	2,482	2,711	2,621	2,793	2,932	3,027	2,933	3,078	3,103	3,281	3,226
Consumption	2,892	3,089	2,970	3,142	3,267	3,334	3,261	3,460	3,505	3,652	3,586
Inventories 1/	652	530	524	490	478	511	665	710	707	728	760
Imports	485	392	493	424	471	551	688	594	611	590	518
Exports	7	13	13	7	31	35	32	35	28	25	18
Waste paper (1,000 tons)											
Receipts	1,773	1,900	1,837	1,978	1,912	2,066	1,887	2,007	1,927	1,991	1,767
Consumption	1,761	1,788	1,804	1,926	1,984	2,012	1,896	1,946	1,998	1,964	1,749
Inventories 1/	338	427	454	515	435	482	468	521	441	462	476
Paper and board (1,000 tons)											
Production, all types	4,591	4,840	4,821	5,026	5,192	5,318	5,108	5,418	5,497	5,654	5,374
Paper	2,342	2,468	2,429	2,540	2,613	2,700	2,582	2,748	2,784	2,852	2,707
Paperboard	2/1,951	2/2,050	2,115	2,178	2,268	2,247	2,183	2,299	2,344	2,425	2,261
Wet machine board	3/	3/	28	30	34	32	34	36	36	32	31
Building board	299	312	249	279	278	340	311	335	332	343	375
Imports, total	777	907	954	983	914	1,037	1,066	1,099	1,050	1,140	1,145
Exports, total	97	82	62	65	76	82	103	92	73	75	76
Wholesale (merchant) (million dollars)											
Sales 4/	268	321	355	374	359	377	393	423	384	372	371
Inventories 1/ & 4/	74	78	81	92	101	105	115	134	148	164	153

1/ End of quarter.
2/ Includes wet machine board.
3/ Not available, included in "paperboard."
4/ Revised series.

Source: Prepared by Pulp and Paper Section, Forest Products Division, Office of Domestic Commerce, based upon data from the Bureau of the Census and Business Structure Division, U. S. Department of Commerce.





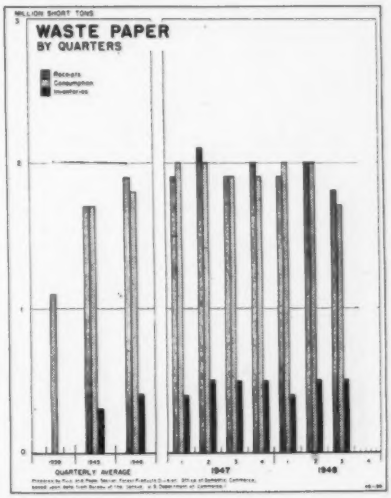


U. S. Production of Paper and Board
(Thousands of short tons)

Period	1944	1945	1946	1947	1948	Percent change 1948 vs 1947
1st quarter				5,192	5,497	+ 5.9
2nd quarter				5,318	5,654	+ 6.3
3rd quarter				5,108	5,374	+ 5.2
4th quarter				5,418	[1] 5,725	[1] + 5.7
Annual	17,183	17,371	19,278	21,029	[1] 22,250	[1] + 5.8

[1] Estimated by Pulp and Paper Section.

Source: Prepared by Pulp and Paper Section, Forest Products Division, Office of Domestic Commerce, based upon data from Bureau of the Census and the Business Structure Division, Office of Business Economics, U. S. Department of Commerce.



have for the past few months indicated a balancing of supply and demand in most sections of the country.

A further factual indication that aggregate production in recent months has been not alone meeting most consumption demands but also taking care of inventory accumulation is apparent from Bureau of the Census data on paper wholesalers' dollar sales, which in the second quarter of this year were 1.3 percent below the same quarter of 1947 and for the third quarter 5.6 percent less than in the same period last year. Manufacturers' sales in terms of dollars and output in terms of tons were, on the other hand, from five to 11 percent greater. This condition is reflected in paper wholesalers' inventories at the end of September being $153 million against $115 million a year ago. The peak in wholesalers' inventories since the war was reached the end of May this year when stocks totaled $166 million.

In early November the consensus of executives of pulp and paper mills, converters, and paper wholesale merchants appeared to be that, with some exceptions, supply is in balance with demand and mill allocations a thing of the past; the industry has moved into the field of selling its products; manufacturers, converters, wholesalers, and retailers are encountering increased competition but have business confidence and observe a firm undertone in the market—aptly characterized as a level of "stabilized demand," with prices firm to upward. The switch over from a seller's to a buyer's market has progressed since early 1948 and is rapidly nearing full completion. Inventories are being carefully watched all along the line. Manufacturers are concerned that their raw material stocks, all the way from pulpwood, pulp, waste paper, chemicals and similar materials, be

(Continued on page 10)

Value of Sales of Products
U. S. Pulp, Paper, Board and Products Manufacturing Industry
(Millions of dollars)

Period	1947	1948	Percent change 1948 vs 1947
1st quarter	1,366	1,510	+10.5
2nd quarter	1,443	1,531	+ 6.1
3rd quarter	1,370	1,524	+11.2
4th quarter	1,485		

Source: Prepared by Pulp and Paper Section, Forest Products Division, Office of Domestic Commerce, based upon data from Bureau of the Census and the Business Structure Division, Office of Business Economics, U. S. Department of Commerce.

U. S. Imports-Exports
Paper Base Stocks, Paper, Board and Manufactures
(Millions of dollars)

Period	Imports 1947	Imports 1948	Exports 1947	Exports 1948
1st quarter	127	186	40	38
2nd quarter	159	192	44	37
3rd quarter	190	175	45	32
4th quarter	180		45	

Note: Data for 1948 preliminary.

Source: Prepared by Pulp and Paper Section, Forest Products Division, Office of Domestic Commerce, based upon data from Forest Products Branch, Office of International Trade, and the Bureau of the Census, U. S. Department of Commerce.

Paper Wholesalers' Sales and Inventories
(Millions of dollars)

Period	1947	1948	Percent change 1948 vs 1947
Sales			
1st quarter	359	384	+ 7.0
2nd quarter	377	372	— 1.3
3rd quarter	393	371	— 5.6
4th quarter	423		
Inventories (End of Quarter)			
1st quarter	101	148	+46.5
2nd quarter	105	164	+56.2
3rd quarter	115	153	+33.0
4th quarter	134		

Source: Prepared by Pulp and Paper Section, Forest Products Division, Office of Domestic Commerce, based upon Bureau of Census data and estimates by Business Structure Division, U. S. Department of Commerce.

Natchez to Have First Dissolving-Pulp Sulphate Mill

International Paper Co. Development Hinges Upon City Providing $300,000 Plant Site

NATCHEZ, Miss. — According to Mayor Lucien Gwin, a multi-million dollar plant producing rayon pulp will be constructed here by the International Paper Co. if citizens of Natchez and Adams county approve a $300,000 bond issue.

Mayor Gwin said he had been informed of the company's final decision by J. H. Friend, of Mobile, Ala., vice-president of International's Southern Kraft division.

City and county officials said a bond issue election will be called early in 1949 to raise money to buy a 1,000-acre site and railroad rights-of-way.

Officials of International Paper were quoted as saying that if the bond issue carries, the mill will be constructed by 1950. It will be the largest in Mississippi.

According to present plans, the new plant will be located at the junction of St. Catherine Creek and the Mississippi River, about two miles below Natchez, and will be built in three sections.

"The first plant section will employ between 800 and 1,000 persons, with an annual pay roll of $2,000,000," a spokesman said. "Construction of the other two sections will double employment and the payroll.

"The new mill will be the first in the world designed to employ an entirely new process for producing dissolving pulpwood used in the manufacture of rayon and other synthetic products.

"This process, involving the use of a sulphate instead of the traditional sulphite," it was explained, "will permit the pulping of hardwoods instead of softwoods.

"The pulp will be used in the production of rayon yarns, cellophane, plastics and allied products, and is particularly adapted for manufacture of rayon specialties such as high tenacity yarns used in tire cord and mechanical rubber goods.

"Capacity of the proposed mill will be 300 tons a day, or about 100,000 tons yearly and will increase by approximately 16 per cent the present estimated North American output of rayon pulp."

Industry Report

(Continued from page 9)

kept at a reasonable level in view of high prices; converters and wholesalers are equally alert and appear satisfied with the current volume of paper and board in their warehouses.

Prices on some paper items by some mills were advanced in September and October, in several instances being reported by mills not having raised their prices in past months to the general market levels. Bureau of Labor Statistics price indexes (1926 = 100) for September show paper at 158.4, up 3.7 points above August and 7.5 points above July. Trade reports, however, indicated some price cutting on paper in the field of the smaller wholesalers and by a few mills confined principally to small quantities of "off-standard" stock. Paperboard, according to B.L.S. data, declined to 165.6 in September from 169.7 in August and 172.2 in July.

The field of foreign trade in pulpwood, wood pulp, paper, board and products has also witnessed a tapering off in the third quarter of 1948. Imports fell from $192 million in the second quarter to $175 million in the third, largely the result of decreased imports of wood pulp from overseas sources. With lower prices prevailing on fourth quarter overseas pulp and with less interest among United States buyers because of a current generally improved market pulp picture, it is unlikely that fourth quarter aggregate imports will equal the fourth quarter of 1947. Exports have shown a declining trend, largely the result of exchange shortages and import restrictions in the more important foreign markets.

Shortage End Seen

SAN ANTONIO, Tex.—The seven-year shortage of household paper items is over, delegates attending the two-day meeting of the Southwestern Paper Merchants Ass'n. at the Plaza hotel November 18-19 agreed.

V. C. Alexander, president, opened the meeting after a welcome by A. J. Lewis, Chamber of Commerce president.

Fen K. Doscher, vice-president of the Lily Tulip Cup Co., told the merchants that the paper salesman is no longer merely a man with an allotment to dispense, a trade statesman and expediter. Mr. Doscher foresaw a paper surplus, bringing with it "rough-and-tumble, dirty competition, with the days of brotherly love among salesmen over" and warned against "chislers."

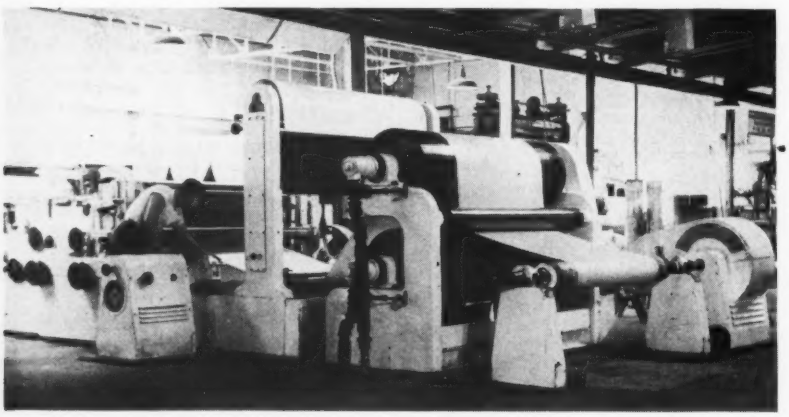
Two steps necessary to prevent price cutting and unfair competition, Mr. Doscher said, are: (1) To support the trade association and through it learn that competitors are not "wearing horns and tails," and (2) To develop latent sales aggressiveness.

A. C. Sien, Jr., association vice-president, predicted increased production of paper items.

Chemical Output Drops

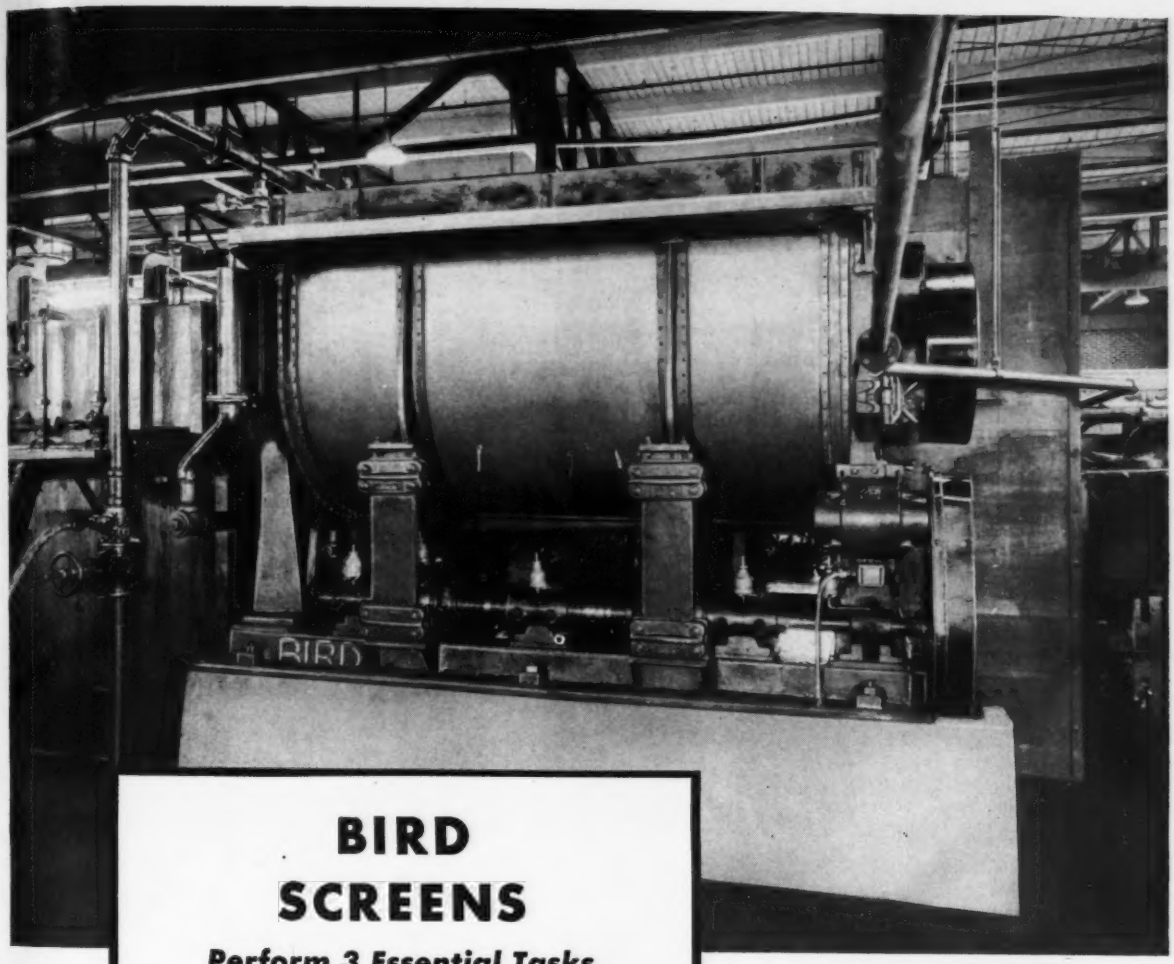
WASHINGTON — Declines were reported in September production of chlorine, soda ash, caustic soda, and sulfuric acid, among others, compared with August levels, in the latest Department of Commerce survey this week.

Reductions were reported as follows: chlorine, 136,382 short tons from 142,412 in August; soda ash, total, wet and dry, 357,618 short tons from 394,215 in August; caustic soda, liquid, 133,986 short tons from 138,424; sold, 29,206 short tons from 29,993; lime-soda process, liquid, 62,177 short tons from 64,850; solid, 22,187, from 22,858, all September against August, respectively.



DILTS EQUIPS NEKOOSA MILL TO WAX

Dilts waxing equipment recently installed and now in operation at the Nekoosa mill of Nekoosa-Edwards Paper Co., Port Edwards, Wis. A variety of waxing operations can be performed on the Dilts Miami 72-inch waxer, including wet waxing on either one or both sides of the sheet. . . . Grades now being treated no the new equipment include Nepco waxed locker paper and Nepco waxed food tissue.



BIRD SCREENS

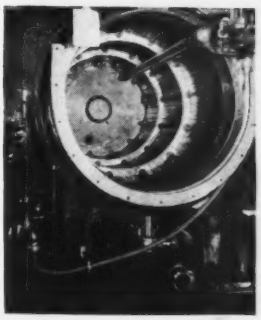
Perform 3 Essential Tasks Ahead of Your Paper Machine

1. They deliver clean stock up to the limit of paper machine capacity.

2. They comb, straighten and individualize the fibres, assuring good formation at maximum machine speed.

3. They deliver stock free of strings, lumps and slime — uniform in weight.

BIRD MACHINE COMPANY
South Walpole, Massachusetts



The Bird Oscillating Shower, driven right from the Screen itself, keeps the screen slots clean and open with extremely small volume of shower water. Many mills are putting it in existing Screens and cashing in on immediate and substantial savings and operating advantages.

90% OF ALL THE PAPER MACHINES IN NORTH AMERICA ARE EQUIPPED WITH BIRD SCREENS

Five-Day Schools for Industry on Battery Use and Care

A series of one-week "schools" to teach techniques of storage battery maintenance and repair to foremen, supervisors and engineers in industries which employ lead-acid batteries for motive power, standby or direct current supply, has been inaugurated in Trenton, N. J., by the Gould Storage Battery Corp.

Those attending the school heard nine lectures, tackle three do-it-with-your-own-hands laboratory projects, witness two major demonstrations, stand written and oral examinations, and receive diplomas, during the five-day course.

Future five-day schools will also be conducted for classes interested in battery-powered lift trucks and material handling systems, diesel starting and air conditioning, among others.

To handle the schools, Gould has set apart a laboratory and office at its Trenton plant, fitted them with standard classroom equipment, purchased special test and charging equipment and tools, and prepared numerous displays to help the lecturers. The lectures cover: storage battery theory, battery design, electrical theory, battery layout, charging methods, maintenance procedure, evaluating secondary haulage, and handling batteries underground. The laboratory projects and demonstrations for attendees included: assembling a complete cell and rebuilding a battery; charging batteries by different methods and setting up charging controls and schedules; repairing damaged batteries with proper tools and correct carbon-arc burning technique; and an inspection tour of Gould's battery manufacturing facilities.

Each Student Becomes a Teacher

One of the noteworthy aspects of the new series of Gould Battery Schools will be their stimulation of better internal company training programs on battery care and use, sending out the graduates trained to re-teach to the rest of his organization what he learned at Gould.

To help further, the Gould field engineering staff will periodically contact each "graduate" to volunteer help, advice and additional data—to keep each company training program continuous and up-to-date.

Staff of Instruction

Most of the teaching is done by Gould engineers and executives, although some sessions are turned over to A. Wayne Bitner of Pennsylvania State College for lectures based on the researches that university has been conducting. In future schools, Gould plans to continue to turn over the Thursday classes to external and impartial authorities in the particular field which is the subject of the school.

The principal Gould instructors are: Dr. H. D. Stanley, engineer in charge, Trenton Div. (battery theory and design); G. N. Stover, quality control engineer (plant methods); A. F. Griffith, consulting engineer (electrical theory); H. A. Kennedy, chief design engineer (layout); J. D. Huntsberger, service supervisor (charging); and K. A. Vaughan, manager field engineering (maintenance). Supervision of the school is in the hands of James A. Gilruth, school director.

All principal lectures will be mimeographed and given in special Course Notebooks to students, along with reference data, charts and diagrams.

Executives of industrial firms interested in sending key maintenance personnel to future Gould Battery Schools should correspond with Mr. Gilruth for arrangement of dates and subject emphasis.

Forestry Contest Winners Announced

CLEMENS, S. C.—What is thought to be the first contest of its kind in South Carolina has just been completed by producers of pulpwood for the Canal Wood Corp., according to W. J. Barker, leader, Clemson Forestry Extension Work.

Mr. Barker says the project started in June, and its purpose was to improve and increase growth rate of the forest by better cutting practices; to make better use of available shipping facilities by proper loading of railroad cars; and to improve the quality of the shipped wood by closer adherence to specifications.

All or parts of nine counties from McCormick and Abbeville to York were included. About 25 producers took part. The contest was sponsored jointly by the Chester division of the Canal Wood Corp. and the International Paper Company of Georgetown.

Judges for the contest, in addition to Mr. Barker were George Pettigrew of the State Commission of Forestry, Herbert Thompson of the International Paper Co., and Howard Doyle of the Southern Pulpwood Conservation Ass'n.

These men made field checks on the cuttings of all the contestants. They recorded stump heights, utilization of tops, damage to remaining stands, removal of deformed and diseased timber and spacing of remaining trees. They were furnished a report by the Georgetown mill of car loadings and adherence to specifications.

"We are well pleased with the results and expect to repeat this contest next summer," Mr. Wood says. "It is our plan to obtain as much of our wood requirements as possible through thinning."

The class in battery repairing is observing R. W. Hopewell, laboratory assistant, as he removes cell connectors.

PRESERVE YOUR PROFITS UNDER A...

bell jar

The bell jar on a W & T Vacuum Chlorinator in your mill is a visible sign of Break-Point Chlorination at work increasing your profits by reducing slime.

Break-Point Chlorination, engineered to your particular needs by Wallace & Tiernan, can get rid of such troubles as slime spots, slime films on fibers, pin holes, odors and many similar faults by controlling and destroying slime-forming bacteria.

In addition, this process on your fresh-water supply, when used with chloramines or other corrective chemicals on stock and white-water, produces a sterile, odorless, tasteless paper or board—requirements which are a must for materials used in dairy or food packaging.

Find out today, at no obligation, how chlorination can lick your slime troubles.

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CHLORINE AND CHEMICAL CONTROL EQUIPMENT
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L-19

Research Requirements of American Industry

NEW YORK — The paper industry is one of eight major industries covered in the "Second Annual Report on the Research Requirements of American Industry" published by the Evans Research & Development Corp., 250 East Forty-Third street.

For industry as a whole, the survey shows:

(A) The government preparedness program will have no immediate appreciable effect on research.

(B) Increased research appropriations will be based, for the most part, on expansion of present business activities rather than on rearmament.

(C) Most companies are concentrating their activities on product and process improvement and the development of new products in fields with which they are already familiar.

(D) Most firms are not making any immediate plans to increase their research activities. (In our survey conducted one year ago, 73 percent reported they would increase their appropriations.)

(E) A majority of companies have the capacity to accommodate new research without being overcrowded or undermanned.

(F) No shortage is expected in experienced research personnel.

(G) More than half of industry employed outside research during the past year, with commercial laboratories receiving a majority of the business.

(H) Of those who plan to increase their research activities, slightly over half will expand their own facilities, while the rest will both expand and use the services of an outside laboratory.

Responses of the paper industry and of industry as a whole, developed the following data:

(1) How much do you anticipate the recently approved government preparedness program will affect your normal research and development activities?

	Paper	Industry as a Whole
Appreciably	6%	6%
Slightly	56	51
Not at all	38	43

(2) Of the total time your company spends on research, what percentage would you say is devotel to:

Improvements of present products or processes?	55	48
Development of new products or processes in your own field?	36	39
Development of new products or processes in other fields?	11	18
Government contract research?	8	13
Development of new products or processes relative to the rearmament program?	5	8

(3) For the coming months, at least, do you expect to be able to continue all your present research activities without interruption?

Yes	97	94
No	3	6

(4) How does the time spent by your company on long-range research compare to that spent on short-range?

Long range	34	38
Short range	66	62

(5) During the past year did your company use the services of an outside research organization?

Yes	73	53
Commercial	(34)	(30)
Endowed	(39)	(23)
No	27	47

(6) In your opinion, will the impact of new military demands coupled with other conditions create a shortage of research personnel experienced in your field?

Yes	29	37
No	71	63

(7) Are your present facilities, such as personnel, space and equipment, fluid enough to accommodate new or additional research without causing congestion?

Yes	54	57
No	46	43

(8) What about your company's research appropriation for the next twelve months? Will your budget

Increase	46	36
Decrease	0	3
Remain the same	54	61

(9) If an increase is planned, is it based on the rearmament program, an expansion of your present business activities, or both?

Rearmament	0	1
Business	83	79
Both	17	20

(10) In conclusion, if your research activities are increased will you

Expand your own facilities	44	54
Use outside research organization	3	5
Perhaps do both	53	41

ASME Honors Outstanding Scientists

NEW YORK—The American Society of Mechanical Engineers on December 1 conferred its 1948 national honors and awards during the Honors Night dinner of the 69th Annual Meeting, in session this week. About 1,500 engineers and their guests attended the dinner, in the ballroom of the Hotel Pennsylvania.

E. G. Bailey, New York, president of the engineering society, delivered the presidential address on the subject, "Engineering Opportunities in Industry." Mr. Bailey is vice-president of the Babcock & Wilcox Co.

James M. Todd, New Orleans consulting engineer, was introduced to the gathering as president-elect. He will take office at the close of the meeting, which will terminate on December 3.

Dr. Frederick G. Keyes, head of the department of chemistry, Massachusetts Institute of Technology, Cambridge, Mass., was awarded the ASME Medal, highest honor of the society, conferred annually for distinguished service in engineering and science.

Edward Smith Cole, president of the Pitometer Log Corp., New York City, was awarded the Worcester Reed Warner Medal.

The Holley Medal, for scientific and engineering achievement, was bestowed on Edwin H. Land, president of the Polaroid Corp., Cambridge, Mass.

Dr. Theodore von Karman, eminent scientist in the field of applied mathematics, was present in person to receive the John Fritz Medal, for which he was cited last February during his absence in Europe on important technical missions.

Honorary memberships in the ASME were conferred on five men;

The society's Junior Award, given for a paper submitted by a junior member, went to 28-year-old Hunt Davis of the Elliott Co., Jeannette, Pa.; and three awards to youthful engineers were scheduled to be given at the student-members luncheon December 2 for outstanding papers on engineering subjects.

E. Duane Stewart, mechanical engineer with the West Virginia Paper & Pulp Co., Westernport, Md., is receiving the Charles T. Main Award for a paper: "The Relation of Invention to Engineering." The Postgraduate Student Award went to Thomas L. Dinsmore, instructor in mechanical engineering at Princeton University, and the undergraduate Student Award to Leroy W. Legerwood, Jr., a student at Oklahoma A. and M. College, Lawton, Okla.

ECA Bi-zonal Cancellation

WASHINGTON—Cancellation of newsprint procurement authorizations totaling $995,000 for Bi-zonal Germany has been announced by the ECA. The paper was to have been obtained in Switzerland and France.

Letters

Dear Sir:

I notice in the article of Mr. Cullen's death, in your issue of November 18, 1948, that in the fourth paragraph it states, "The first kraft paper mill in the South has been built at Orange, Texas, in 1910."

To keep the records straight, the first kraft paper mill (sodium sulphate pulp mill) built in the United States and the first mill to operate on Southern Pine was at Roanoke Rapids, N. C. (The Roanoke Rapids Manufacturing Company) and the mill was built in 1908 and started operating in the early part of 1909.

In your issue of Paper Trade Journal, under date of July 16, 1925 entitled "Pulp and Paper Making in the South" by John D. Rue, on page 60 it states, "The first plant designed for the sodium sulphate process in the United States at Roanoke Rapids, N. C."

T. R. H. MURPHY
R.F.D. No. 1
Ridgefield, Conn.

CLARK CLAMP LIFT TRUCK

CLARK CLAMP LIFT TRUCK

Move materials faster, safer and at a saving with

Battery Electric Trucks and EXIDE-IRONCLAD® BATTERIES

Put battery electric trucks to work saving and earning for you. In thousands of plants, with material handling problems like yours, they are helping to boost production and cut costs. In fact, industrial management has found that materials handling is one of the few remaining fields where major economies can be effected.

Battery Electric Trucks can save time, manpower and money for you in loading and unloading cars and trucks . . . in handling materials in process . . . in hauling and tiering in warehouse . . . in every materials handling job from receiving to shipping. Ask for dependable, long-lasting power, equip your trucks with Exide-Ironclad Batteries, the batteries that assure full shift dependability, day after day, year after year.

Exide-Ironclad Batteries have ALL FOUR of the vital characteristics of an efficient storage battery—high power ability, high electrical efficiency, ruggedness and long life.

Write for further particulars and FREE copy of Exide-Ironclad Topics. It covers latest developments in materials handling and shows actual case histories.

DEPENDABLE

POWER

1888...Dependable Batteries for 60 Years...1948

THE ELECTRIC STORAGE BATTERY COMPANY, Philadelphia 32 • *Exide Batteries of Canada, Limited, Toronto*

Pacific Mill's New Ocean Falls, B. C. Boiler

OCEAN FALLS, B. C.—Pacific Mills has placed in operation its new boiler designed and manufactured by Babcock-Wilcox and Goldie-MacCulloch Co. at Galt, Ontario. Charles C. Moore & Co., engineers, Vancouver, B. C., and San Francisco, supervised the installation, with Siedelman, Shields & Co., of Vancouver, handling the building and boiler suspension steel.

The boiler utilizes either fuel oil or pulverized coal, and is at present operating on fuel oil.

Ingersoll-Rand feed pumps utilized are rated at 600 gpm at 1900 foot head. A Canadian General Electric, 400-hp 3,600 rpm. 2,300-volt motor is used in normal operations for one pump. The second pump, which is used as an auxiliary, for standby service, is powered by a 400-hp Worthington-Moore steam turbine.

Sheldons, Ltd., manufactured the forced and induced draft fans which are also driven by Worthington-Moore turbines, taking steam at 400 lbs. and exhausting at 125 lbs. The Bailey Meter Co. supplied the combustion controls with the exception of the Cope's "Flowmatic" feed water regulator.

The boiler weighs approximately 750 tons including 50 tons of water. Suspended from above, it is approximately 72 feet from the floor to the top of the suspension steel.

A steam turbo-generator, built by Ateliers De Construction Oerlikon, Zurich, Switzerland, with 5,000-kw, 3,-600-rmp is operated in connection with the boiler. This takes steam for the boiler header at 725 psig and exhausts at 125 psig into the main process steam header. A second generator is a 4000 kw 3600 rmp General Electric condensing unit. Both generators are connected for 2300 volts operation.

The company has also completed a large program of steam plant re-piping. A 3,000-gallon storage header for pump suctions as well as new oil heaters have been installed. Electrical work has also been checked and extensive new installations added. The electrical system involved the installing of over 5,000 feet of four-inch conduit cables.

Michigan Supt's. Honor Oldsters

KALAMAZOO, Mich.—About 90 members and their special guests were present at the annual "old timers" night staged by the Michigan division, American Pulp and Paper Mill Superintendents Association, at Hotel Harris the evening of November 18.

The following ex-presidents of the National Association were at the cocktail and dinner party, each given a rousing welcome when introduced by Allan B. Milham, official greeter and toastmaster.

John H. O'Connell, consultant, Washington, D. C., president 1922-23; E. T. A. Coughlin, Richland, representative of C. T. Main, Engineers, Boston, president of 1926; Carl Mangus, Green Bay, Wis., Green Bay Paper & Pulp Co., president 1931; Roy T. Kelly, manager, Marathon Co., Rothschild, Wis., president, 1933; William H. Brydger, Lynchburg, Va., president 1933 and now on the board of trustees; Grover Keeth, Marathon Co., president 1943; Raymond L. Barton, Michigan Paper Co., Plainwell, Mich., president 1945-46.

Letters and Wires Read

Letters and wires were read from four other national ex-presidents, and from E. H. "Dad" Gilman, oldest living member, now 84, living at Coloma. Robert B. Stewart of the Kalamazoo Vegetable Parchment Co., and Abe Vandenberg, retired, were the oldest among the 20 other old-timers present.

Mill executives and management representatives present included R. A. Hayward, KVP president; Dwight Stocker, president Michigan Paper Co.; George Carlton, Detroit Sulphate Co.; Fred Goodwill, St. Regis Paper Co.; Glen Graham, Sutherland Paper Co.; James A. Wise, Kalamazoo Paper Co.; Harry C. Bradford and John King, Rex Paper Co.

The past presidents gave short talks, with keenly analytical discussions of European conditions gained from recent visits by Messrs. Brydges and Harry D. Eljason, executive vice-president of the Cellulose Sales Corp. Allen Hyer, former head of the paper division of the WPB, now with the Bagley-Sewell Co., Watertown, N. Y., gave a most optimistic and careful review of the machinery outlook as it affects the future of the paper industry.

Harry E. Weston, National association secretary, presented a series of lantern slides, "Names to Remember," which portrayed old-time paper makers. In the contest connected with the showing, first prize was won by Merton S. Fogerty of the Sutherland Paper Co., and second prize by Mr. Coughlin.

A film on logging operations in Ontario was shown, with a running commentary by William Schlafge, assistant superintendent of the Minnesota & Ontario Paper Co., International Falls, Minn.

It was announced that the division's next meeting will be a 6:30 dinner at Hotel Harris on December 16, when the speaker will be Philip H. Goldsmith of the Pusey & Jones Corp., Wilmington, Del. Mr. Goldsmith's topic will be "Paper Machine Development."

Army-Navy Bids, Awards

Invitations to bid have been issued by the Navy Purchasing Office, 111 East 16th street, New York City, on the following items:

Invitation No. 3787 — Mimeograph Paper — 17,000 reams. Bids will be opened December 8, 1948, at the New York office. Delivery: 30-60 days to Naval Clothing Depot, Great Lakes, Ill.

Invitation No. 3754 — Paper, Duplicating, Various Sizes — 24,000 boxes. Bids will be opened December 8, 1948, at the New York office. Delivery: December 1948, March and June 1949, to various destinations.

Invitation No. 3792 — Board, Bristol, Folding — 65,900 sheets. Bids will be opened December 7, 1948, at the New York office. Delivery: 30 days to Supply Officer, Puget Sound Naval Shipyard, Bremerton, Wash.

Invitation No. 3706 — Paper, Various sizes and colors — 184,800 sheets (approx.). Bids will be opened December 1948 at the New York office. Delivery: within 60 days to various destinations.

Invitation No. 3684 — Paper, Various sizes and colors — 224,400 sheets. Bids were opened November 30, 1948, at the New York office. Delivery: December 1948 to various destinations.

Invitations to bid have been issued by the New York Quartermaster Purchasing Office, 111 East 16th street, New York City, on the following item:

QM-30-280-49-535 — Files, Paper Arch Board, w/o index and cover 9" x 17" (composition or wood back) — 2,000; Pads, Desk, Cardboard, 19" x 24" — 4,000. Bids were to be opened December 2, 1948, at 1:00 p.m. (EST) at the New York office. Delivery: to be completed during February 1949.

Awards have been made by the Navy Purchasing Office on the following items:

Invitation No. 3524—Drinking Cups (Directive quantity: 1,200,000). To: Raycarr Sales Co., N. Y. — 500,000 @ $.00302 ea.; 700,000 @ $.00143 ea.

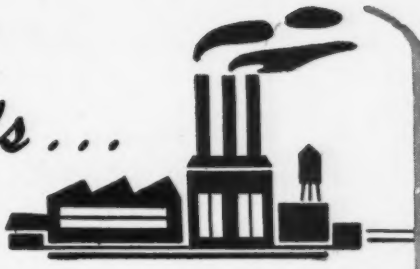
Invitation No. 3699 — Liners, Container (Directive quantity: 20,000 ea.). To: Kieckhefer Container Co.—20,000 @ $107.20 per M., Camden, N. J.

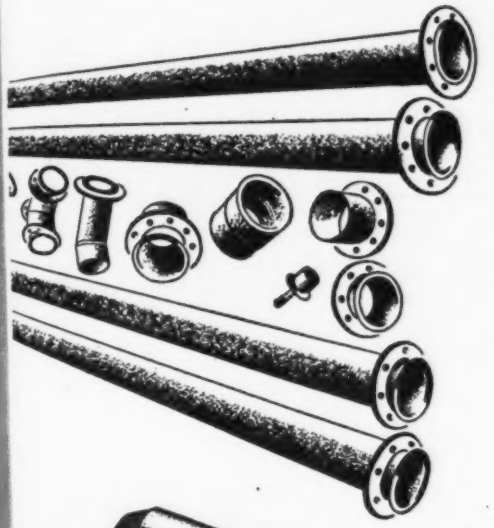
$47,951,480 ECA

WASHINGTON—Procurement authorizations for paper and paper products under ECA during the week of November 29 will reach $47,951,480.

For cost-wise mills . . .

STOCK LINES of MONEL





MORE than 15 years of trouble-free service! That is what one mill reports of MONEL* stock lines used for carrying alkaline bleached sulfite pulp. Scores of other mills report similar experiences with MONEL pulp-handling equipment.

What *special* properties of MONEL make such remarkable service records possible? There are many. It will pay you to consider them carefully!

MONEL is 100% rustproof, and highly resistant to corrosion and chemical attack. These features, alone, will put an end to your stock-line deterioration worries.

Add to the list, satin-smooth finish, strength equal to structural steel . . . *and you have a metal "made-to-order" for pulp, paper, and board mill uses.*

You'll find MONEL easy to work with, too. You can weld, braze, and solder it . . . perform any standard fabricating operation without special tools.

Important, too . . . because of MONEL's exceptional strength, you can use lighter sections for stock lines. Van Stone or other readily-connected joints will make it easy for you to remove or redesign your installations.

Your nearest INCO distributor stocks easily-workable "35" MONEL sheet. Or, if you prefer not to do your own fabricating, he will recommend competent concerns specializing in this work.

You'll find a list of distributors in: *"Lighter Weight, Longer Life, Lower Cost Stock Lines."* Send for your copy today.

*Reg. U. S. Pat. Off.

THE INTERNATIONAL NICKEL COMPANY, INC.
67 Wall Street, New York 5, N. Y.

MONEL . . . for Minimum Maintenance

OAKITE FIELD MEN STUDY CLEANING PROBLEMS

How recent developments in the field of cleaning and allied procedures are helping industry to combat rising production costs, was the central theme of a series of technical-sales conferences held in New York, Chicago, and Kansas City during November by Oakite Products, Inc. . . . The first of these regional conferences, held at Hotel Pennsylvania, New York City, incorporated a program of lectures and round-table discussions attended by Oakite field service representatives. Highlighted were reports by Oakite research chemists, service engineers and technical specialists. Also discussed were new Oakite materials and equipment to be made available to industry during the coming year. . . . Similar conferences were held in Chicago and Kansas City.

Miss McGrath, Speaker

LOCKPORT, N. Y. — The next regular monthly meeting of the Western New York Group, Empire State Section of TAPPI, has been scheduled for Wednesday, December 8, at the Park Hotel.

The dinner meeting at 6:30 p.m. will be preceded by mill trips through the Lockport Felt Co. plant at Newfane, N. Y., starting at 3:30 p.m. and the board mill of the Upson Co. at 5:00 p.m.

Miss L. E. McGrath, president of the Booth Chemical Co., Elizabeth, N. J., will address the group on the subject "The Importance of Recirculating Whitewater." Miss McGrath has been for many years a valued consultant on whitewater and stock-saving problems in many mills throughout the country, and is presently acting chairman of the Water Committee of TAPPI. She will trace briefly the evolution of the "closed system," with a resumé of the water coordination practices prevalent in our modern paper mills.

Included in the talk will be some figures on the efficiencies of the various types of saveall and recirculating units and the value to the mill.

Quarter Century Club

NEW YORK — At the recent annual outing of Geigy Co., Inc., employes a serious touch was given to the gaiety of the occasion by the installation of the Geigy Quarter Century Club (America) when 28 men and three women of the company's staff in the United States and Canada were honored by the New York staff and in an address by President William F. Zipse. Terms of service ranged from 25 to 50 years.

Package Mach'y Shifts

SPRINGFIELD, Mass. — Recent shifts of officials at Package Machinery Co., East Longmeadow, have affected four top management officials, it was made known here on November 19.

George A. Mohlman, president, was made chairman of the board of directors, and Roger L. Putnam resigned as chairman of the board to become president. Roe S. Clark, secretary-treasurer, has been elected chairman of the executive board, and will continue to hold both jobs. The vacancy in the position of vice-president in charge of manufacturing, caused by the death of George C. Ferver, has been filled by Harold Mosedale, Jr., who was promoted from production manager.

55 Years Old

PASSAIC, N. J.—The Manhattan Rubber Division of Raybestos-Manhattan, Inc., which has just completed its fifty-fifth year, traces its ancestry to the dawn of the rubber industry, to the first chartered rubber company in America, the Roxbury Rubber Co. of Boston, organized in 1833, six years before Goodyear used sulphur to vulcanize rubber. In 1845, the Roxbury Co. was reorganized by Henry Fowle Durant, founder of Wellesley College, and John Haven Cheever, who became joint owners of the Boston Belting Co. and another rubber company. Today, Manhattan Rubber Division is one of the largest manufacturers of mechanical rubber goods.

Names Selma Distributor

MILWAUKEE — The Baldwin-Duckworth Division of the Chain Belt Co. has named the Selma Foundry & Machine Co. of Selma, Ala., a distributor of Baldwin-Rex roller chain, cut tooth sprockets and flexible couplings.

Three Personnel Changes

WILMINGTON, Del.—Changes in key administrative personnel of the Hercules Powder Co.'s cellulose products department disclosed to *Paper Trade Journal* on November 27 by J. J. B. Fulenwider, department general manager, are as follows: J. B. Wiesel, director of sales since 1930, will become assistant to the general manager; Carl W. Eurenius will succeed Mr. Wiesel as director of sales, and A. R. Olsen has been named manager of plastics promotion. Mr. Wiesel will devote his time primarily to promotion of the department's products into new fields. Mr. Olsen will be in charge of the promotion of cellulose acetate and ethyl cellulose in the plastics industry.

Cooper Alloy Coordination

HILLSIDE, N. J.—The Cooper Alloy Foundry Co. has coordinated its advertising, publicity and public relations activity under the direction of George Black, public relations division manager. Mr. Black's published articles appearing in trade journals have made his name familiar to engineering personnel concerned with metal processing, and he has often been called upon for assistance in the organization of publicity and advertising programs and preparation of technical material in simple, understandable form.

Columbia Research Posts

BARBERTON, Ohio — Dr. Albert E. Sidwell, Jr., has been named assistant director of research and Ralph F. Wolf manager of compounding research for the Columbia Chemical Division of the Pittsburgh Plate Glass Co. Assistant director of research, Dr. Franklin Strain, will continue as administrative assistant to Dr. Alphonse Pechukas, who is research director for the division, in addition to directing laboratory work in the field of organic chemistry.

Taberski to Wallerstein

NEW YORK—Frank A. Taberski has joined the Wallerstein Co., Inc., 180 Madison avenue, where he will promote the application and sales in the paper field and other industries of Amyliq, an enzyme product for preparing sizings, coatings, and adhesives from starch. Before joining Wallerstein, Mr. Taberski was chief chemist in the coating department of the Imperial Paper & Color Corp.

Standardize Screw Threads

WASHINGTON — Unification of the American and British standards of screw threads was the subject of an accord signed by delegates and representatives from Government and industry of Canada, United Kingdom and the United States, signed at the National Bureau of Standards on November 18. The accord culminates 30 years of effort among the three nations to achieve unification of standards.

Tax Removal Asked

OTTAWA — Canadian daily newspapers have asked the Canadian Government in an interview with Finance Minister Abbott here that the eight percent sales tax on newsprint be removed and thus put them on an even basis with magazines and comic books which do not pay the tax.

...*"so we kept trying Mathieson!"*

..."now we're getting more alkali. Mathieson supplied us from their expanded output."

What's your need—heavy chemicals for greater production... new products...a new plant? Be sure to check with Mathieson. Our recent expansions were *planned* to include new customers. If you're in an area served by Mathieson, or will locate in one, we may find ways to supply you, too. Mathieson Chemical Corporation, 60 East 42nd Street, New York 17, N. Y.

Mathieson
CHEMICALS

Caustic Soda...Soda Ash...Bicarbonate of Soda
Liquid Chlorine...Chlorine Dioxide...Ammonia, Anhydrous & Aqua...HTH Products...Fused Alkali Products
Dry Ice...Carbonic Gas...Sodium Chlorite Products
Sodium Methylate

try Mathieson

ESTABLISHED 1892 • PLANTS AT NIAGARA FALLS, N. Y., SALTVILLE, VA., LAKE CHARLES, LA.

N. E. Electric Power

(Continued from page 7)

struction costs since the war, and the continuing high taxes tend to limit expansion in the transition from war to peacetime economy. Possible tax reduction and a general stabilization of prices might improve this condition."

Taking these and related factors into consideration, the committee estimated that New England's peak power load in 1957 will be approximately 4,000,000 kilowatts.

Building toward that requirement, 1,144,000 kilowatts of capacity has either been constructed since VJ Day or is now under construction or on order, but all of that will be in use by 1951. By 1957, it is estimated, total installed capacity, including secondary hydropower and reserve capacity, will have reached 4,994,000 kilowatts and, the committee expects, "there should be very little possibility of a power shortage by that time."

The report gives considerable space to analysis of the cost of power production, and on the basis of figures for 1946, the last year for which complete data is available, finds that of the total cost taxes account for one-fifty, the return of the investment for one-fourth, fuel for one-sixth, general expenses for one-eighth, and that in 1946 the average cost of delivered power by utilities of all types was 2.47 cents per kilowatt hour. The average of taxes paid by power producers is about 4 mills per kilowatt hour, or about the same as the cost of fuel for generating steam power.

But since 1946, construction costs have increased materially. The report warns that when the new generating capacity with transmission and distribution facilities now being constructed at high cost levels is completed, the average figure may be considerably higher than in 1946.

It is pointed out also that although the total cost of providing electrical service can be accurately figured, the problem of apportionment of those costs to the various types of service is another matter. In New England the consumer of industrial power paid an average of 1.47 cents per kilowatt hour in 1946, and the residential or domestic user, 4.05 cents.

A chapter of the report devoted to consideration of hydro-electric power is illustrated with a series of profile maps of New England rivers, all tending to support the committee's findings that 73 per cent of the area's economically feasible water power already has been developed. In Maine the proportion is 65 per cent, and in the three southern states of the tier it is 82 per cent. Most of the best remaining undeveloped sites are in Maine, but in Maine the Fernald Law, passed in 1909, prohibits the export of hydroelectric power outside the state.

It is not feasible, for example, to provide sufficient storage to equalize seasonal fluctuations of streams. Development of remaining water power sites is handicapped by unfavorable location with respect to the centers of power demand—the principal sites in Maine, for example, are 250 miles from Boston.

Also, New England river valleys frequently contain property such as farm lands, homes, buildings and roads which may be too expensive to justify the cost of purchase or relocation to make way for water power storage. Political implications involved in such undertakings, the committee suggests, also may be difficult to resolve.

In any event, the report states, "even projects financed with public funds should provide a rate of return sufficient to amortize the investment in a reasonable period of time and justify risking the taxpayers' money."

In this connection the report considers at length a number of public projects such as the Army's flood control program, which is an example of the "dual purpose" undertaking calculated to comprise not only its primary objective of control but also the production of power as a by-product.

"It should be noted," said the report, "that the problem of flood control in New England is one of great difficulty, not only because of the magnitude of floods in valleys in which the flood plains has been encroached upon by dwellings, industrial plants, roads and railroads, but also because the occurrence of floods is not confined to spring. Because of that factor it is imperative that capacity to take care of possible floods be maintained in flood control reservoirs at all times."

The committee notes also that although there are no federal power projects in New England at present, the Army has made preliminary examinations and surveys for floor control and allied purposes on the principal rivers of the area.

The reports is not enthusiastic about the St. Lawrence River development project so far as it would affect New England, while granting that from an engineering standpoint it is feasible to develop and transmit within a reasonable distance about 700,000 kilowatts of dependable power on the American side of the river. "Whether or not any of this power can be made available at a reasonable cost to New England, and when it may be available depends," the report says, "on the action of the legislative bodies of the federal government, Canada and the state of New York.

"In any case, it appears that no power could be made available for seven to 10 years because of the time required for negotiation plus at least a six-year construction program. In any event, if a certain block of power were allocated to New England, it would be a small part of the estimated increase in New England load in the next 10 years.

"It is believed," the committee reports, "that no account should be taken of possible power from the St. Lawrence River development for New England in connection with planning for the next 10 years."

The committee likewise suggests that no great expectations be pinned to the Passamaquoddy project, discussion of which has recently been renewed. "There seems to be no evidence to indicate," the report states, "that the international project would be more promising in terms of cost of power than that form which would confine the development wholly within the United States. Certainly there is no economic justification for advocating expenditures on the Passamaquoddy project before a thorough engineering study is made."

Although those sections of the report dealing with probable power needs of the future are specifically confined to the requirements of the next 10 years only, the committee recognizes that development of atomic power ultimately may alter the entire problem. "However," says the report, "it seems apparent that any commercially usable application of atomic energy to any great extent is at least 10 years in the future. The use of atomic energy in some form to generate heat to produce steam, thereby replacing the usual boilers of a steam plant, seems to be the method by which this form of energy may eventually be used.

"Our judgment is that clearly no one should delay sound and economical additions to power supply, whether by fuel-generated electricity or water power because somewhere in the future atomic energy will come on the scene as an additional source of supply. There will certainly be ample time to make whatever adjustments may be needed."

LEGGETT JOINS PAISLEY

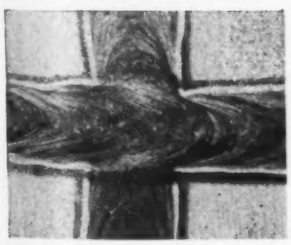
Calvert Leggett, former president of Park, Leggett, Altman Co., Minneapolis, recently acquired by Paisley Products, Inc., New York City, is now general manager of the PLA Division.

Three New Concentrates

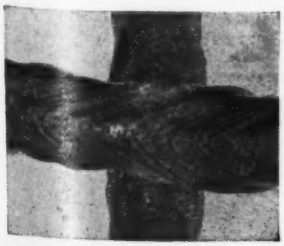
PEABODY, Mass.—Three new types of Arwax concentrates reported to hold great promise for users of paraffin and microcrystalline waxes have been launched by the American Resinous Chemicals Corp. They are of either polyethylene, butyl rubber or S-polymer in paraffin or microcrystalline wax and supplement the first series of Arwaxes which were Vistanex concentrates. The new concentrates are stabilized against degradation by heat or oxidation. Technical Data Sheet C-46 on the new concentrates is available on request to the manufacturer.

HOW TO PROTECT this danger zone

...at less cost



Welded specimens exposed to a boiling solution of 15% nitric acid and 2% hydrofluoric acid. Standard Type 316 (top) fared badly near the weld but areas adjoining the weld in ARMCO Type 316 ELC (bottom) show no evidence of attack.



The vulnerable target in most Stainless Steel paper mill equipment subjected to severe corrosion is not the weld; it is the area adjacent to the weld.

This is why ARMCO Research developed ARMCO ELC Stainless Steel. It *cuts material cost* and prolongs service life because this rustless steel is just as corrosion resistant near the welds as elsewhere.

The reason is the Extra-Low Carbon (.03% maximum) in ARMCO ELC. This eliminates intergranular corrosion by preventing harmful carbide precipitation during welding. Annealing after welding is *not necessary*, except when engineering requirements specify stress-relief for the welds.

This saves money, especially in the case of large assemblies fabricated from heavy-gage sheets or plates. Annealing is not only costly, but sometimes virtually impossible because of the size of the equipment.

ARMCO ELC is recommended for welded equipment to be used at temperatures *below* 800°F.

This new grade is available in ARMCO 18-12 Mo ELC (Type 316 ELC) and ARMCO 18-8 ELC (Type 304 ELC) in sheets, strip, plates, bars and wire. Mechanical properties of the ELC grades are similar to those of the corresponding standard grades.

ARMCO Engineers will be glad to talk with you about specific applications of this new rustless steel. Or call your equipment fabricator. Armco Steel Corporation, 510 Curtis Street, Middletown, Ohio.

Export: The Armco International Corporation

ARMCO

ARMCO STAINLESS STEELS

New Power Plan Proposed for Holyoke

HOLYOKE, Mass. — The Municipal Gas and Electric Department has filed a new application with the Federal Power Commission in Washington that asks for the right to construct two 15,000 kilowatt hydro-electric power units at the Holyoke dam—a project that might result in the city's paper mills losing their century-old indentured power rights on the three-level canal system here.

The application was filed November 16 by Attorney James M. Healy of Longmeadow, one of counsel for the local Gas and Electric Department. No announcement was made of this by Manager Francis H. King of the Municipal department, and the first information about it came from Washington sources.

At the same time this application was filed, the first application for a preliminary permit to make a three-year study of river power conditions was withdrawn. This was filed with the FPC about a year ago, without any previous public announcement of intentions.

The new request of the Gas & Electric department parallels in several details the proposal of the Holyoke Water Power Co., that was presented to the FPC several months ago. The Holyoke Water Power Co.—which represents the indentured rights of the paper mills—at that time asked for permission to build one 15,000 kilowatt hydro-electric power unit at the dam.

Both the Holyoke Water Power Co., and the Gas and Electric Department agree that the ultimate potential hydro-electric power development at the Holyoke dam is 60,000 kilowatts. The power company proposes to build a 15,000 unit at once and to build more in similar size up to 60,000 kilowatts "when economic conditions justify it."

The Gas and Electric for the first part of its program does not propose to raise the present height of the dam which is 97.5 feet.

It proposes to provide sufficient water for process purposes; and proposes to substitute an equivalent amount of electric energy for the existing indentured mil power owned by each industrial plant.

The Gas and Electric says in its application it proposes to acquire certain facilities of the Holyoke Water Power Co. No specific breakdown is given of the facilities but it is assumed it wants the dam, which is the heart of the Holyoke Water Power Co.'s system.

A first study of the application does not show any proposed change in the canal system, but it is understood that Manager King would like to abolish that system, which he believes is antiquated.

Grows Prehistoric Tree

VANCOUVER, B. C. — G. J. Jonker, 2220 Kingsway, is growing a tree which he recently acquired from the Arboretum of Harvard University, and which is of a species thought to have become extinct 20,000,000 years ago. A specimen of this tree was recently discovered in China.

In botany circles it is known as the melasequoia glytostroboides (metis squire glatus trobowdis) or "Dawn Redwood."

The tree, discovered by a Harvard expedition in 1945 into the provinces of Hupeh and Szechuan, Central China, was found flourishing in a remote village never before visited by foreigners. Growing to a height of 40 feet in its natural state, the Chinese gave it the name of "Shui-sa," meaning Water Spruce or Water Fir.

Since he planted it last March 18, it has grown 18 inches. The leaves resemble those of a fern and although belonging to the conifer family it sheds its leaves each winter, he says. He hopes to propagate it for commercial sale.

The Dominion Experimental Farm at Saanichton on Vancouver Island is attempting also to germinate the plant. Experts believe the "Dawn Redwood" is a relative to some of the better-known commercial timber trees and might prove of considerable economic importance.

Benefiting Norway

WASHINGTON—Norway has benefited by the increased output of chemicals in the United States and other major chemicals producing countries, through increased availability of supplies, it is indicated in reports to this Government.

The effect of increased chemicals output in this country and other chemicals manufacturing countries such as the United Kingdom, France, Belgium, the Netherlands and Italy, it is said, has been very noticeable, especially with respect to products which either were unobtainable in 1947, or in very limited quantities.

Although the issuance of licenses by Norwegian authorities for importation of chemicals has been limited, it was pointed out that the licensing authorities have recognized the essential nature of chemical products for Norwegian industry.

Chemicals still in short supply there, it was reported, include potassium and sodium bichromate, chromic, formic and oxalic acids, potassium carbonate, butyl alcohol and butyl acetate, besides ethylene glycol.

Flood Control Commended

HOLYOKE, Mass. — Army Engineers who recently completed a survey of the north portion of the local flood control works, filed a report on November 16 with Mayor Henry J. Toepfert, indicating that the condition of the structures is satisfactory and reflects general credit on the maintenance program devised by local authorities.

Eleven deficiencies, however, were noted during the inspection and a vigorous corrective program was suggested.

Most important of those noted was that the cleaning and painting all tailrace gates, sluice gates, stem guides and brackets was not completed.

The engineers added that the new floodwall will be the responsibility of the city for operation and maintenance next year, and that it will require a substantially larger maintenance program.

Boston Paper Trade Ass'n.

BOSTON—At the Annual Fall Dinner of the Boston Paper Trade Ass'n, held in the Louis XIV Room of Hotel Somerset, on November 17 with an attendance of more than 200, Stewart Anderson gave an illustrated address, describing his trip of "15,000 Miles in a Modern Covered Wagon." He started from Boston, motoring on the Northern Route across country, including the Black Hills, Glacier National Park, Yellowstone Park, Lake Louise, Banff, California coast, Mexico and Grand Canyon. Another portion of the entertainment included "characteristic songs," by the Weber Male Quartet. President William N. Stetson, Jr., was toastmaster.

In the business session, the following new members were elected: Regular membership, John F. Blackman, D. F. Munroe Co. Limited membership, Edwin C. Chadwick, L. L. Brown Paper Co., New York; Edward J. Hanigan, Henry Lindenmeyr & Sons, Boston; Grant Harrington, Hollingsworth & Vose Co., East Walpole; Walker J. Hosmer, Millers Falls Paper Co., Millers Falls, Mass.; Edward J. Sullivan, Oxford Paper Co., New York; Earl J. Ward, St. Regis Paper Co., New York, and Carl F. Werner, Keith Paper Co., Turners Falls, Mass.

The following were appointed as a nominating committee to bring in at the next meeting names of those proposed as officers for the ensuing year: Col. Charles S. Proctor, Proctor Paper Co.; John W. Vivian, Cook-Vivian Co., Inc., Robert M. Stone, Stone & Forsyth Co., John R. Halkyard, Carter, Rice & Co., Corp., and C. Edward Rice, International Paper Co.

All stood in silence out of respect to the memory of O. T. Bracken, of the Dennison Mfg. Co.

Officers of the association are: President, William N. Stetson, Jr.; first vice-president, F. Henry Savage; second vice-president, Floyd H. Blackman; secretary-treasurer, Norman E. Scott.

SWEET MUSIC

Although Orr chemically-treated felts, known as Orr-Chems, have been available only a little over a year, already a large percentage of the mills have tried them and practically 25% have adopted them. From the standpoint of both manufacturer and mill, it certainly is "Sweet Music."

For a "maiden year" effort the above showing adds up to a record hard to beat and points the way for mills not yet Orr-Chem conscious.

Analyzing that record, the mills report the following benefits, not a single one of which should be passed over lightly.

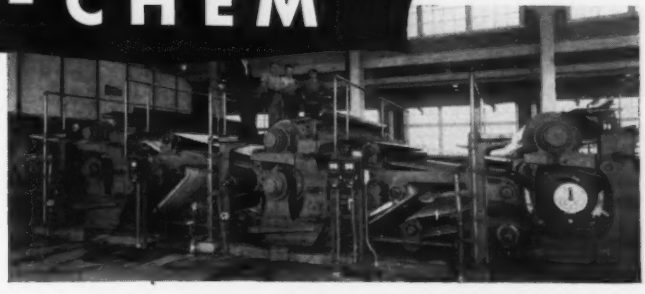
Orr-Chems set to the machine more quickly
Orr-Chems stay on longer
Orr-Chems drain water faster
Orr-Chems require fewer wash-ups
Orr-Chems are less inclined to shrink, or stretch, or blow.

These are not Orr claims. Rather, they are mill observations and they come from mills from coast to coast; from mills running practically every grade of paper and board made.

If you would cut the per-ton felt cost of your production and bring smiles to management, mill personnel, and stockholders, you should obtain some Orr-Chems for tryout.

THE ORR FELT & BLANKET CO.
PIQUA, OHIO

ORR-CHEM



ASME Conference and Materials Handling Show

Philadelphia Convention Hall, January 10-14

PHILADELPHIA—The broadest conference on the problems of materials handling in the various industries of the country ever to be conducted will be held at Convention Hall, January 10-14, inclusive, under the sponsorship of the materials handling and management divisions of the ASME.

The conference will be held concurrently with the Materials Handling Show where 225 exhibitors will display the latest models of hand trucks, lift trucks, conveyors, hoists, monorails, portable elevators, stacking units, cranes, tractors, trailers, fork trucks, skids and pallets and their respective accessories. The show will cover more than 100,000 square feet of net exhibit space.

Topics to be considered include developments in bulk handling; work simplification; opportunities for distribution economies; handling in the future; top management's interest in handling; coordination of handling equipment in a manufacturing plant; the growing importance of materials handling in our present economy, and the user's approach to the materials handling engineer.

Also, a symposium on equipment; handling problems in a steel warehouse, as well as refrigerated warehouses; automatic pallet loading; modern engineering methods and their relation to handling; materials handling problems in the manufacture of light perishables and semi-perishables; coordination of materials handling engineering with related engineering practice; the economics of materials handling; opportunities for sales engineering, and the outlook for the materials handling industry.

Decision Upheld

TORONTO, Ont.—In a decision of the Ontario Court of Appeal handed down on November 23, Chief Justice R. S. Robertson announced the judgment, which upheld Chief Justice McRuer's earlier decision to grant six Sudbury district property owners an injunction restraining the Kalamazoo Vegetable Parchment Co., Ltd., from "depositing foreign substances in the Spanish River in future."

Commenting on the decision B. F. Avery, president of Kalamazoo Vegetable Parchment Co., Ltd., said:

"It is unthinkable that the process of making pulp and paper, in general use throughout the world, should have to stop." He added that the Espanola mill uses the most modern processes in the world, "and that means the least wasteful." He said there is no known alternative to the present processes which would prevent the pollution from waste, "though the industry is constantly striving to improve the situation. You can visualize what might happen if we had to cease operations. Since 1943 when we began reconstruction here, the town's payroll has gone from practically nothing to $350,000 monthly." Mr. Avery pointed out that the company was a $16,000,000 corporation and said the "company agreed with the intent of the law," which was to protect all persons equally, and "we shall strive to observe that. But we still have to make paper if we are to stay in business." Mr. Avery contended that although the town could not be more isolated than it is, "there are many who live along the shores of the Spanish River who have never complained."

Round Table Club

NEW YORK — The 55th luncheon meeting of the Round Table Club sponsored by the Baldwin Paper Co., at the Waldorf-Astoria hotel on November 24, moved from its usual quarters in the Wedgwood Room to the Grand Ballroom when some 1,400 customers and mill representative friends of President Samuel Himmell responded to his invitation to meet and hear E. W. Tinker, executive secretary of the American Paper & Pulp Ass'n., discuss the general paper outlook, and Billy Rose, showman and columnist, put on an unforgettable one-man show.

Mr. Tinker told his audience that there is no justification for any undercurrent of pessimism with respect to the general outlook for the paper business in 1949 and added that there is every justification for assuming that business will be reasonably good in the forseeable future, with no reason for concern because normal competitive conditions have returned.

The recent basing-point decision of the Supreme Court was revolutionary and will upset the distribution system of the paper industry, Mr. Tinker stated, but predicted that the incoming Congress will "straighten out" the basing-point ruling.

Mr. Rose, speaking seriously, told the record gathering that "we are living in a world in which we must stand on one leg." It appears that "we will have to go on living while standing on one leg," Mr. Rose added.

W. F. Vallely, vice-president of Baldwin, was toastmaster of the meeting.

Amos' Ramblings

NEW YORK—E. G. Amos, secretary-treasurer of the Salesmen's Ass'n. of the Paper Industry, bulletining his group's membership on November 25 under the heading of "In Our Ramblings We See — ," wrote in part:

"Jack Culverhouse, formerly Fort Howard Paper Co., now with Groveton Papers — Oliver Porter of U. S. Pulp Producers Ass'n., now chief of the Pulp and Paper Section of the National Security Resources Board in Washington, D. C. — Beardsley hunting ducks in Winnipeg and may be in New York for Christmas — Bud Miles, for lo these many years with Crocker-McElwain, going with Missisquoi — Andy McBurney of Oxford, a new member of SAPI on the Eastern board — Marv Vanderheiden at a sales conference at the mill — Incidentally, Schiebler, with no broken bones, in attendance — Doc Merchant (Box 465, Chino, Calif.) rapidly becoming a native son — Walter Dawson, the president and only member of the newly formed Half Century Club of Hamersley Mfg. Co."

Rail Rate Cut

HOLYOKE, Mass. — A rate reduction by the New Haven Railroad has brought about a daily saving of from $125 to $150 to paper manufacturers who ship their products from Holyoke to New York City, it was disclosed November 16.

The reduction, amounting to five cents per 100 pounds of paper, originated with a joint request by the traffic managers of the Holyoke paper mills and the Sheldon Transfer & Storage Co.

Arthur E. Sheldon, treasurer of the trucking firm, pointed out that the rate slash applies to paper shipments only, and then on a 50,000-pound carload basis. The rate per 100 pounds had previously been 20 cents, he said, and the five-cent allowance brings the charge back to about what it was before the recent series of freight rate boosts.

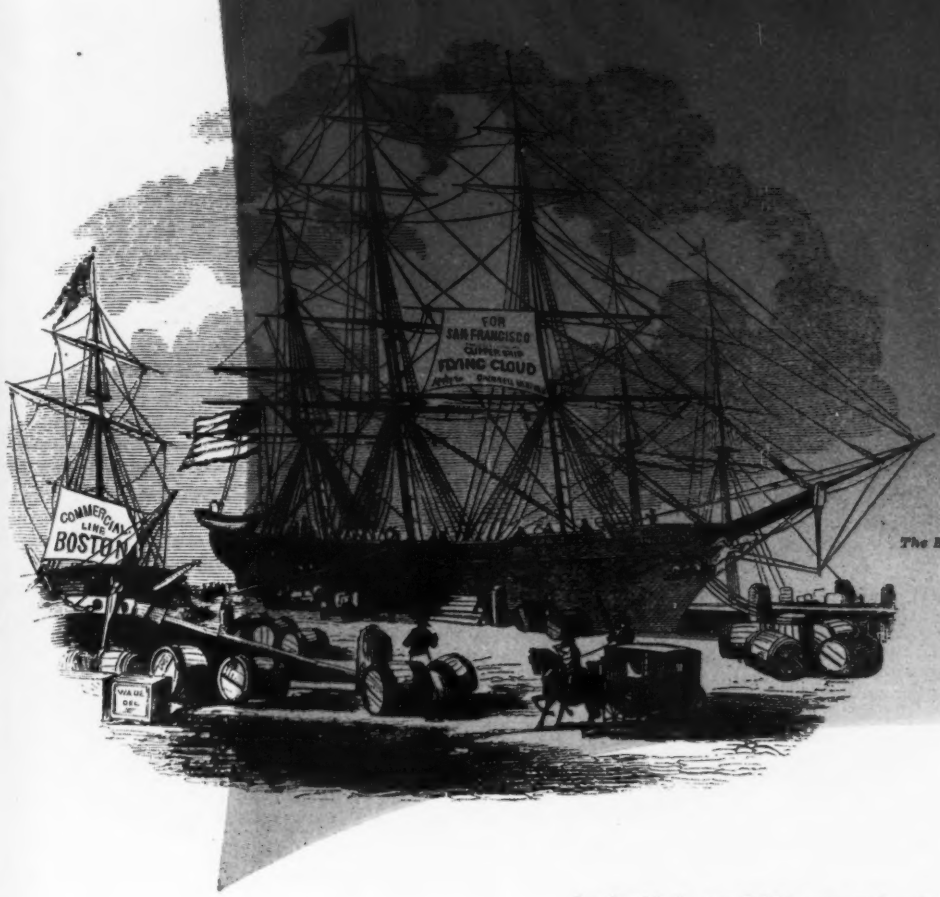
The rate cut on the 150-mile run from Holyoke to New York City is of major importance to major paper companies in this area because the destinations of their shipments are mainly in the New York City area.

Sutherland Notes Placed

NEW YORK—Private placement of $2,500,000 in 3.10 percent serial notes for Sutherland Paper Co., has been disclosed by Harris, Hall & Co., Inc. The notes are due semi-annually November 1, 1954, to November 1, 1963.

BUENOS AIRES—A Federal court on November 27 rejected an appeal of the newspaper "La Prensa" against a government decree expropriating ten percent of the newsprint entering Argentina. This was the second time in five weeks that the government was upheld in court. The newspaper contended the decree was unconstitutional.

One first leads to another...



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Leadership in any field is won and maintained only by continuing to take new steps in service . . . innovating better ways of doing things.

For nearly fifty years Niagara Alkali Company has been a pioneer and an innovator in the field of electro-chemicals. The experience thus acquired can be extremely valuable to you as a user of Niagara Caustic Soda, Caustic Potash, Carbonate of Potash, EBG Liquid Chlorine, Paradichlorobenzene and Niagathal (Tetrachloro Phthalic Anhydride). You can rely on Niagara quality and service.

NIAGARA ALKALI COMPANY

60 East 42nd Street, New York 17, N.Y.

LIQUID CHLORINE • CAUSTIC POTASH • CARBONATE OF POTASH • PARADICHLOROBENZENE • CAUSTIC SODA • NIAGATHAL (TETRACHLORO PHTHALIC ANHYDRIDE)

AMERICAN PAPER AND PULP ASSOCIATION'S PRODUCTION RATIO REPORT*

(Production as per cent of six-day capacity)

COMPARATIVE WEEKLY SUMMARIES

Current Weeks—1948		Corresponding Weeks—1947	
October 16	99.9	October 18	108.3
October 23	98.7	October 25	110.2
October 30	99.3	November 1	111.1
November 6	97.0	November 8	108.9
November 13 (Revised)	99.6	November 15	109.1
November 20	**100.8*	November 22	111.9

COMPARATIVE MONTHLY SUMMARIES

1947						1948	
Jan.	102.1	May	106.2	Oct.	109.5	Jan.	100.3
Feb.	105.9	June	106.2	Nov.	109.3	Feb.	99.8
Mar.	106.1	July	95.5	Dec.	101.5	Mar.	100.8
Apr.	105.1	Aug.	104.2			Apr.	100.8
		Sept.	102.0	Year Avg.	104.3	May	100.5
						June	95.7
						July	‡88.1
						Aug.	‡96.8
						Sept.	‡91.8
						Oct.	‡99.1

‡ Preliminary Ratios.

COMPARATIVE YEARLY SUMMARIES

	1941	1942	1943	1944	1945	1946	1947	1948
Year to Date	97.0	91.5	87.6	88.5	89.3	101.4	104.5	97.2
Year Average	97.4	90.4	87.8	88.1	89.4	101.1	104.3	

** Indicates 1948 volume of 181,561 tons—Comparable week 1947—177,342 tons.

PAPERBOARD OPERATING RATIOS†

Current Weeks—1948		Corresponding Weeks—1947	
October 16	97	October 18	101
October 23	95	October 25	101
October 30	96	November 1	100
November 6	95	November 8	102
November 13	96	November 15	101
November 20	97	November 22	102

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1947	99	103	101	100	101	101	90	99	96	101	99	89	98
1948	99	100	102	102	100	94	81	92	*91*				

* Based on tonnage reported to American Paper and Pulp Association. Does not include mills reporting to National Paperboard Association, except in isolated cases where both paper and paperboard are produced and separate tonnage figures are not readily available. Does not include mills producing newsprint exclusively.

† Per cents of operation based on "Inch-Hours" reported to the National Paperboard Association.

Advertising Council Acts

NEW YORK — The House Magazine Committee of The Advertising Council, Inc., is sending to more than 6,000 U. S. house organ editors a guide for four months' advertising support of public service campaigns prepared by the Council.

The guide carries ad-proofs of four different public service campaigns: Better Understanding of our Economic System (January); Fight Tuberculosis (February); United America (March); and Stop Accidents (April).

Logwood Extract

WASHINGTON—A printing-ink base being used in the printing of telephone books and newspapers derives a valuable quality from use of logwood extract as a component, says the Tariff Commission.

This extract in the base gives the ink an easily-bleachable quality, facilitating the reclaiming of the paper for repulping and re-use, the Commission finds. Imports of the wood itself have declined since the war, it is reported, with a shift to imports of the extract instead.

Watermark Movie Ready

PORT EDWARDS, Wis.—The Nekoosa Bond motion picture entitled, "The World Behind a Watermark," has been completed and will be available to distributors of Nekoosa Papers within the next 30 days for showings to printer customers. The 35 minute sound and color movie, under production for the past year, was completed in time for a premiere showing at the recent Nekoosa Bond Merchant's Dinner in Chicago.

Safety Record Award

CARTHAGE, N. Y. — Converting department employes of the Crown Zellerbach Corp. were presented with a safety award plaque by Resident Manager Raymond J. Schadt, at the local mill on November 16. The plaque was won in competition with seven other converting departments in the Crown Zellerbach organization during July, August and September. To win this award the 167 employes in the department worked during the three months without a single "lost time" accident.

Pakistan Mill Planned

OTTAWA—The Montreal engineering firm of Stadler, Hurter & Co. is reported to have received a contract from the Pakistan Government to investigate and to report on the possibilities of a newsprint industry in that country, with a company engineer leaving for that country shortly.

Ros C. of C. Head

GEORGETOWN, S. C.—J. M. Ros, mill agent at the Southern Kraft Paper Mill here, is the new president of the Georgetown Chamber of Commerce.

Seeks Water Cost Cut

POTSDAM, N. Y.—A plea to have the metered price of water reduced for quantity consumers was voiced by one of the largest water users here at the mid-November meeting of the village board. Attorney Thomas Perrin appeared in behalf of the Potsdam Paper Mill, pointing out that during the low water-level of the river the mill had been forced to close several times and at other times had purchased water from the village.

Addresses Supervisors Club

LOCK HAVEN, Pa. — Eugene Rodabaugh, fibre and pulp technologist of the New York & Pennsylvania Co., was the featured speaker at the Supervisors Club meeting attended by about 100 industrial supervisors at the Castanea School, sponsored by the Castanea Civic Club, the evening of November 15. Following the dinner the supervisors were taken on a tour of the New York & Pennsylvania plant.

Metalized Condenser Paper

LEE, Mass. — Equipment jointly developed by Smith Paper, Inc., and the National Research Corp., of Boston, for the production of metalized condenser paper is ready to be installed in the Niagara mill of Smith Paper here. Dr. P. A. Forni of the Smith technical staff, who is in charge of the project, said it will take about three weeks to complete installation.

Finch to Hall Bros.

HOLYOKE, Mass. — Mark L. Finch, manager of the greeting card department of the White & Wyckoff Mfg. Co., is leaving to join Hall Brothers Co., greeting card manufacturers, of Kansas City, Mo., it was reported on November 27. He came to Holyoke about a year ago from the Norcross Greeting Card Publishers of New York City.

Visits Scottish Mills

BOSTON—Jacob Bloom, owner of J. Bloom & Co., fancy printing paper, cardboard, wedding and paper specialties merchant, has just returned from a six-week trip to Switzerland, France, England, Scotland and Ireland. He spent much of the time in Southern France and Switzerland. In Scotland, he visited a number of the paper mills.

Argentine Paper Registry

BUENOS AIRES—All firms and individuals holding newsprint stocks in Argentina were ordered by government decree on November 26 to register such stocks with the office of supply of the Department of Industry and Commerce.

Buffalo Incorporation

BUFFALO, N. Y.—Western New York Sanitary Products & Paper Corp. of this city has been incorporated with capital of $15,000. Incorporators are Joseph A. Albrecht, Frank J. Maguire and Ralph J. Gregg.

UNIT RESPONSIBILITY
key to more *Productive Power*

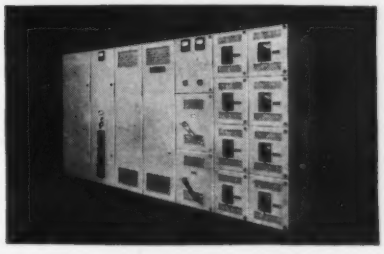
It is in the finishing room that the value of unit responsibility shows up the most. An improved finished product reflects the fine performance of all equipment which entered into its making . . . from the turbine generator in the powerhouse to the motor driving this supercalender.

Putting power to work productively can be a major problem—or a simple one. Obtaining items from many sources means chances for costly errors and delays.

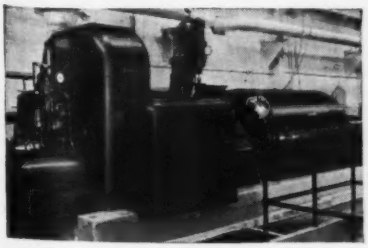
Westinghouse offers the way to simplify the job. From equipment for generation of electrical or steam power, to the most specialized types of drives and control for its utilization, Westinghouse provides a single source of supply, competent to take responsibility for performance of all parts of the job.

Here are a few of the places where Westinghouse unit responsibility prevents headaches . . . saves money . . . assures more productive power. For details, call your local Westinghouse office or write Westinghouse Electric Corporation, P. O. Box 868, Pittsburgh 30, Pennsylvania.

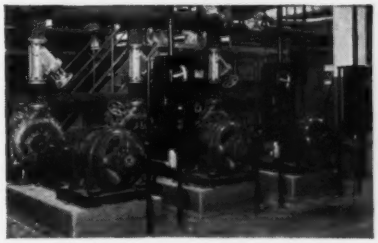
J-94775



SWITCHGEAR—Westinghouse supplies a complete range of "Unitized" metal-clad switchgear that permits quick, economical installation.



TURBINES—Constant process steam pressure and constant speed are maintained by this modern, 3,000-kw. double-bleeder turbine, a unit of the Westinghouse complete line.



AUXILIARIES—Boiler room auxiliaries driven by Westinghouse motors and control assure continuity of service and give the desired flexibility of operation.

STOKERS—Ability to burn cheaper grades of fuel and to eliminate smoke nuisance are two outstanding advantages of Westinghouse "Link-Grate" Stokers.

Westinghouse

PLANTS IN 25 CITIES . . . OFFICES EVERYWHERE

HENRY PERRY

—known throughout the pulp and paper industry for his knowledge of operational problems, has opened an office for consulting services at Room 404, One East Forty-Second Street, New York City. . . . Mr. Perry has been identified with the industry for 23 years, having been employed successively by Bennett Ltd., Chambly Canton, Quebec, 1925 to 1928; the Arthur D. Little Co., Cambridge, Mass., 1928 to 1930; the J. P. Lewis Co., and Latex Fibre Industries, Beaver Falls, N. Y., 1930 to 1945, and Frederic C. Clark Associates, New York City, 1945 to 1948. Mr. Perry, who was technical director of Latex Fibre Industries during the entire period of development of latex-impregnated papers used as artificial leather, for making luggage, inner-soles, etc., is a Registered Professional Engineer and is active in the National Society of Professional Engineers: TAPPI; Northeastern Wood Utilization Council; Empire State Section, Society of American Foresters; Forest Products Research Society and Canadian Pulp & Paper Ass'n. He is secretary of the Metropolitan Group of the Empire State Section of TAPPI and was instrumental in the formation of this group last Spring.

Baker Bond Booster

BUFFALO, N. Y.—Melvin H. Baker, president of the National Gypsum Co., has been appointed to an Erie County Industrial Committee which will promote thrift among employes by securing larger enrollments in the Payroll Savings Bond Plan.

Drives Safely 30 Years

KALAMAZOO, Mich. — Edward De Vries, who has completed 30 years of driving without an accident, wheeling a truck for the Kalamazoo Vegetable Parchment Co., has been awarded a pin and plaque by the General Accident Assurance Co.

Wisconsin Foundation

PORT EDWARDS, Wis. — The Nepco Foundation has made a contribution of $10,000 to the University of Wisconsin Foundation Centennial Fund, Herbert V. Kohler, Kohler, Wis., general chairman of the campaign, reports.

GPO Seeks Bids for Waste Paper

Bids are invited for the removal and purchase of unsorted grades of waste paper from the Government Printing Office premises within the District of Columbia and any point designated in adjacent Maryland and Virginia, not more than 15 miles from the District of Columbia boundary, as shown in the tabulation below.

The bidder shall submit with his bid information as to his previous experience in handling waste paper, and the equipment and facilities available for the performance of the contract. In awarding the contract, the Government will give consideration to these factors, among others, in addition to the amount of the bid.

This contract is for the period January 1, 1949, to March 31, 1949.

Bids must be submitted in quadruplicate on the bid forms and mailed or delivered in time to reach the Director of Purchases, Room 816, Government Printing Office, Washington 25, D. C., prior to the date and hour of opening.

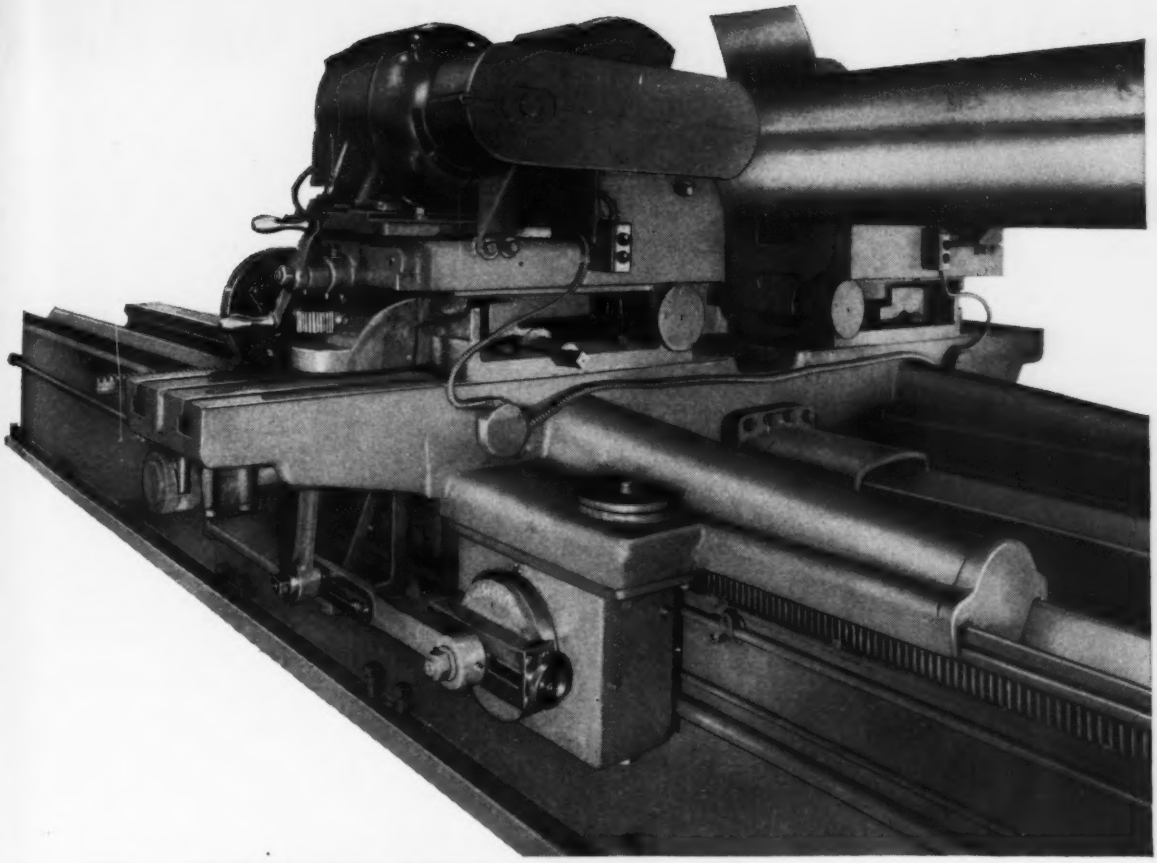
Bids will be opened at 10:00 a.m., eastern standard time, on December 8, 1948.

Unsorted Waste Paper

GPO Class No.	Estimated quantity, pounds	Description	Price per 100 pounds for waste paper in machine-compressed bales or on skids, weighing not less than 400 pounds.
15	3,932,441	"Unsorted waste paper." This item represents the total waste of this Office for all grades. The bidder's price on item 15 shall reflect the fact that this unsorted waste consists of waste from all grades of paper accumulated by the Government Printing Office.	

For the information and guidance of bidders we are listing below types of paper and approximate quantities of each class which are expected to be contained in the quantity listed under class 15. Bids will not be accepted for individual items in this schedule.

GPO Class No.	Description	Estimated quantity, pounds
1	"No. 1 mixed paper" consists of waste paper which does not have the uniform or distinctive qualities required for classification in any other grade	1,138,546
2	"No. 1 mixed ledger (colored ledger)" consists of sheets and shavings of ledger, bond, and writing papers, white and colored. Free from ground wood and contain no more than 2% outthrow. Other papers which are similar and equivalent may be included.	369,996
3	"No. 1 hard white shavings" consists of shavings or sheets of new bond or writing paper of sulphite or rag fiber content free from ground wood.	186,386
4	"Manila tabulating cards, free from ground wood" consists of new or used printed manila cards which have been manufactured for use in automatic tabulating machines. May include tabulating cards of similar stock having colors other than manila.	100,000
5	"White blank news" consists of unprinted cuttings or sheets of white newsprint paper or other papers of white newsprint quality.	650,357
6	"No. 1 ground wood flyleaf shavings" consists of the trim of magazines, catalogs, pamphlets, and similar printed matter, not limited with respect to ground wood, and may contain the bleed of cover and insert stock, but shall be free from beater-dyed papers.	235,034
7	"Mixed books" consists of books, pamphlets, or magazines, including outthrow not to exceed 20% of the total weight of the packing. (GPO publications in this class include bindings in paper and boards covered with leather, cloth, or paper. Such portions of these publications must be multilated by the contractor before removal from the premises, as required by the Public Printer and will not be baled or sacked by the Government.	377,382
8	"No. 1 heavy books and magazines" consists of used and overissue books, pamphlets, and magazines, stitchless stock, and similar printed matter and may contain colored ledger or any white paper. The packing may contain up to 5% outthrow.	30,744
9	"Mill wrappers" consists of paper used as outside wrappers for rolls or bundles of finished paper stock and may contain sulphite or kraft screenings, ground wood fiber or chemical wood fiber.	94,427
10	"No. 1 soft white shavings, consists of shavings and sheets, all white, from book, and similar printing papers free from printed matter and containing not in excess of 10% of coated paper stock or heavily filled papers. Free ground wood.	79,555
11	"Boxboard cuttings" consists of new cuttings of waste paper grades of paperboard (i.e., paperboard made principally from waste paper) such as is used in the manufacture of folding paper cartons, set-up boxes and similar boxboard products.	165,574
12	"Old corrugated containers" consists of stock from used corrugated containers and may contain other kraft paper or board.	56,768
13	"New manila envelope cuttings" (postal card trim); consists of new cuttings or sheets of unprinted manila paper of the quality used in the manufacture of postal cards.	300,000
14	"Tarred paper, tympan and other oily papers, used paper towels, cloth bound book backs, etc.	60,000



LOBDELL

PAPER MILL ROLL GRINDER

Crowning Device — with a single, simple adjustment — produces any desired crown or concave, within the capacity of the machine, upon any length roll . . . speeds grinding . . . increases economy.

Low Head Wheel Carriage reduces vibration . . . enables operator to maintain a more accurate check on the grinding operation . . . permits easier, faster handling of rolls. Write for detailed information.

LOBDELL COMPANY *ESTABLISHED 1836* **WILMINGTON 99, DEL.**

EXPORT DEPARTMENT

767 DREXEL BLDG., PHILADELPHIA 6, PA., U.S.A.—CABLE ADDRESS: LOBDELLEX

7,000 Enter Rhinelander's Machine Name Contest

Ripco Maid, Name Chosen

RHINELANDER, Wis. — In a contest which it conducted to name its recently completed glassine paper machine, the Rhinelander Paper Co. received over 7,000 name suggestions. Entries came from all over the world, with Sweden, Denmark, Norway, and Finland predominant as foreign contributors and with sprinklings from England, Holland, Africa, Cuba, Canada, and South America.

The contest idea was developed as the company neared completion of a $4,000,000 expansion program. The idea was regarded as particularly appropriate because an earlier machine installed by the company had become famous under the catchy name of The Big Swede. In addition to the paper and packaging trade journals, Rhinelander advertisements announcing the contest appeared in *Time* magazine, and all ran under the heading, "The Big Swede Has A New Brother (could be a sister) . . . Help Us Name Him!"

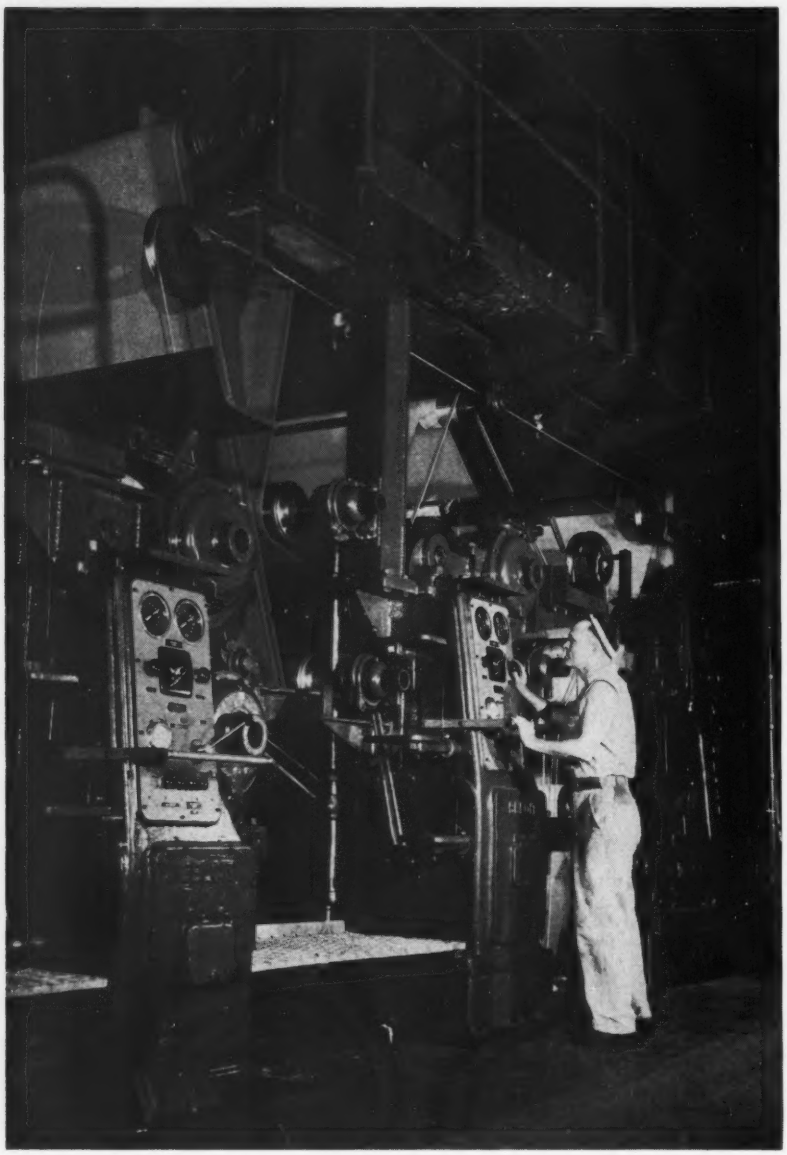
The great majority of names received had a Scandinavian flavor. Over 75 entrants suggested The Great Dane. Hundreds had fun with outlandish puns and there were dozens of Swedehearts, Swedie Pies, Swede Sues, and the like. Then there were uncounted Olgas and Helgas and Oles and Olafs in every conceivable combination and with a variety of adjectives. Gus, Gussie, and Gustav were numerously mentioned — probably out of deference to Sweden's good king. It is hard, however, to account for such nominations as Gussie the Hussy or Gussie the Greaseproofer.

Some interesting highlights are that over 100 contestants submitted Big Bertha, and 18 liked the more than unusual Yumpin Yiminy. It would have been strange if Paul Bunyan were not suggested, but it could hardly be expected that 184 persons should do it—either Paul or his big blue ox, Babe. The cartoonist, Fontainne Fox, should be interested in knowing that 83 persons drafted his Powerful Katrinka.

Other major classifications of entries revolved around bigness, Rhinelander, the idea of twinship, brotherhood or sistership, American and Yankee, Wisconsin and Badger, Giants and Strong Men, the numeral Seven, etc. Hundreds of names resorted to simple, good-humored horseplay such as the amazing John's Other Glassine and Greaseproof Making Machine and Slug O' Glug.

In judging the names the management felt it did not want a Scandinavian title. The company is thoroughly American. Naming one machine The Big Swede was a one-time inspiration and a nice tribute to the Rhinelander company's president, Folke Becker, but there was no desire to continue the Viking accent. Other names, no matter how good, were ruled out if they had no special application to Rhinelander (if they could be applied equally well to the machine of some other paper company). This left only three categories from which to pick the winner—names involving Rhinelander, Ripco, or the numeral Seven.

Two contests had been run simultaneously — with two sets of prizes — one for Rhinelander employes and one among the public. The name chosen to christen the new machine—Ripco Maid—was submitted by an employe, Otto Stark of the stores department. It was felt that Ripco Maid gave the machine a human personality, utilized Rhinelander's well-known brand name, and all in all sounded well. The winner of first prize in the general contest was Mister Ripco, submitted by H. D. Graham of the Graham & Jones Paper Co., Jacksonville, Fla. Frank Zachmann of E. R. Squibb & Sons, Brooklyn, took second prize with The Rhinelander Clipper; and Mrs. Si Posen of Shelton, Wash., submitted Miss Seven, which won for her the third prize. Fifty additional contestants received consolation prizes.



Rhinelander Paper Co.'s giant new "Ripco Maid", named in a contest that drew entries from all over the world, is companion to the firm's "Big Swede" glassine paper machine.

There's just one metal for the tough process jobs —that's ALLEGHENY METAL

Data on the Uses of ALLEGHENY METAL in Various Industries

Available *now*—informative booklets on Allegheny Metal in the Chemical, Petroleum Refining, Brewing, Meat Packing, and Dairy Industries—others in preparation. Write for this valuable data on the field in which you are interested.

ADDRESS DEPT. PA-70

Whatever corrosion problem you face—and no matter how the job is complicated by conditions of heat and pressure—we can meet and match it with the proper grade of Allegheny Metal.

This time-tested stainless steel is designed to do all jobs well. Its resistance to corrosive attack and heat oxidation—added to great strength and hard, smooth surface—knocks the dollar-mark out of maintenance and depreciation costs. Allegheny Metal equipment reduces clean-ups to minimum cost, too—and with the least possible "down" time.

● Let us help you to master the tough conditions, or to do almost any steel job *better.* Specify and use Allegheny Metal—*it's cheapest in the long run.*

ALLEGHENY LUDLUM STEEL CORPORATION
Pittsburgh, Pa.

Nation's Leading Producer of Stainless Steels in All Forms

AL

W&D 1604

ALLEGHENY METAL is stocked by all Joseph T. Ryerson & Son, Inc. warehouses

Annual Timber Growth Near Total Yearly Cutting

Newsprint Service Bureau's Royal S. Cutting Tells Forestry Students

SYRACUSE, N. Y.—"The outlook for a permanent timber supply in North America sufficient for all our needs is more hopeful today than at any time in the past," said Royal S. Kellogg, secretary of the Newsprint Service Bureau, New York, speaking on December 1 to the students of the New York State College of Forestry.

"The total annual growth of all our forests is not far from the total annual cut for all purposes, plus losses by fire, insects and disease," Mr. Kellogg asserted, "But this is no reason for complacency or cessation of conservation efforts," he added. "In some regions and with some species it will still take a long time and a lot of hard work to restore the balance of quantity and quality needed. But great progress has been made in the past 20 years. We know how to grow and utilize timber. We have an increasing personnel of trained foresters. We have enough land better suited for forest production than any other purpose. Large industrial enterprises north, south, east, and west are assuring the permanence of their raw material supply by far-sighted coordination of these factors.

"There is frequent public complaint about the high prices for lumber, paper, and other forest products, and in some cases these complaints are probably justified. But the critics are not aware of the fact that until recent years the making of forest products was based upon the harvesting of a crop freely provided by nature. From here out production costs must include the growing of timber. And don't forget that we conserve what is worth conserving. A better price for forest products is our greatest assurance of continuous supply.

"No responsible person today is predicting a timber famine in the United States, as was the case 40 years ago, but the alarums of that time did help awaken the public to the fact that forest destruction was greater than forest growth — with the result that federal, state, and private owners of timberland are cooperating with increasing effectiveness in the solution of forest problems.

"We shall always have to work for the conservation of all our natural resources, but now we know the means to be used, and realize that in most cases conservation practices pay in dollars and cents! The appeal is as strongly to our present prosperity as to our future welfare, hence we are full of hope.

"But I must emphasize something of fundamental importance," said Mr. Kellogg in closing, "something without which all else is worthless. This is the *conservation of human freedom.* We are again in the age-old struggle of man against tyrannical dictatorship. The systems set up by Mussolini, Hitler, Stalin and their feeble imitators are not innovations. They are reversions to the darkest of ages. No gatherings like this today are held under their regimes.

"Progress comes only where man is free to inquire, to discover, to invent, to apply all his energies in the directions his reason, his intuition or his ambition suggest. The only proper check upon him is that his actions should not harm others now or in the future. We in the United States have had these blessings for 170 years. We are so accustomed to them that we fail to remember our all-time debt to Thomas Jefferson, Benjamin Franklin, George Washington and the many brave and able men associated with them. They were really educated — not all of them in schools — *and they understood government* as few do today. They knew the age-old evils to be guarded against and they knew the measures to be taken. To Jefferson, especially, we owe the authorship of nearly all the most important documents of that time. The men of his native state of Virginia were set free by the abolition of entail and primogeniture, the separation of church and state, the statute for religious freedom, and the founding of the University of Virginia. The most important documents of the Continental Congress were also drafted by Jefferson — the Declaration of Independence, the ratification of the peace treaty with Great Britain, the first Ordinance of 1784 for the government of the Northwest Territory and the adoption of the dollar as the monetary unit.

"It is even truer now than it was then that 'The price of liberty is eternal vigilance.' We have a right to look to the forester for more than average service in the conservation of Human Freedom, because of his training in the search for truth, his understanding contacts with nature, and his constant necessity for keeping his feet on the ground. His choice of profession will unquestionably lead him into broader fields."

LRI Nation-Wide Productivity Drive Picks Up Momentum

NEW YORK — The three-pronged national campaign to increase productivity by ten percent and thereby halt rising prices is picking up momentum with unusual results among the members of the Labor Relations Institute, 1776 Broadway. Industrial concerns who are not members of the Institute have been invited to join the campaign.

So marked has been the success of this vast nation-wide effort to increase productivity that companies have already reported as much as a ten percent productivity rise within a few days of initiating the program.

The three prongs of the Institute's effort reach out to all levels of company operation — management, foremen, and rank-and-file workers. Each group is kept in constant contact with the problems affecting increased productivity. But the material provided each of these groups is aimed at the specific audience for which it is intended. The approach is geared to a thorough understanding based upon years of experience as to the type of material that can do the best job among each group.

For example, the Institute publication, "Practical Methods in Labor Relations," which goes to top management three times a month, offers the latest, up-to-the-minute techniques for increasing productivity on a policy-setting level. It is written specifically for management.

The second prong of the Institute's attack is aimed at foremen. The publication, "Foreman Facts," distributed to foremen twice monthly, emphasizes the following approach: (1) It sells the foreman the practical know-how he needs to do his job, in a manner readily adaptable to conference use, but (2) the material is not shoved down his throat—it's fed to him in an interesting, easily digestible, down-to-earth, common sense form; and (3) there is no attempt to interfere with previously established company training programs. Consequently, there is no encroachment on the areas which can be considered company policy and practice.

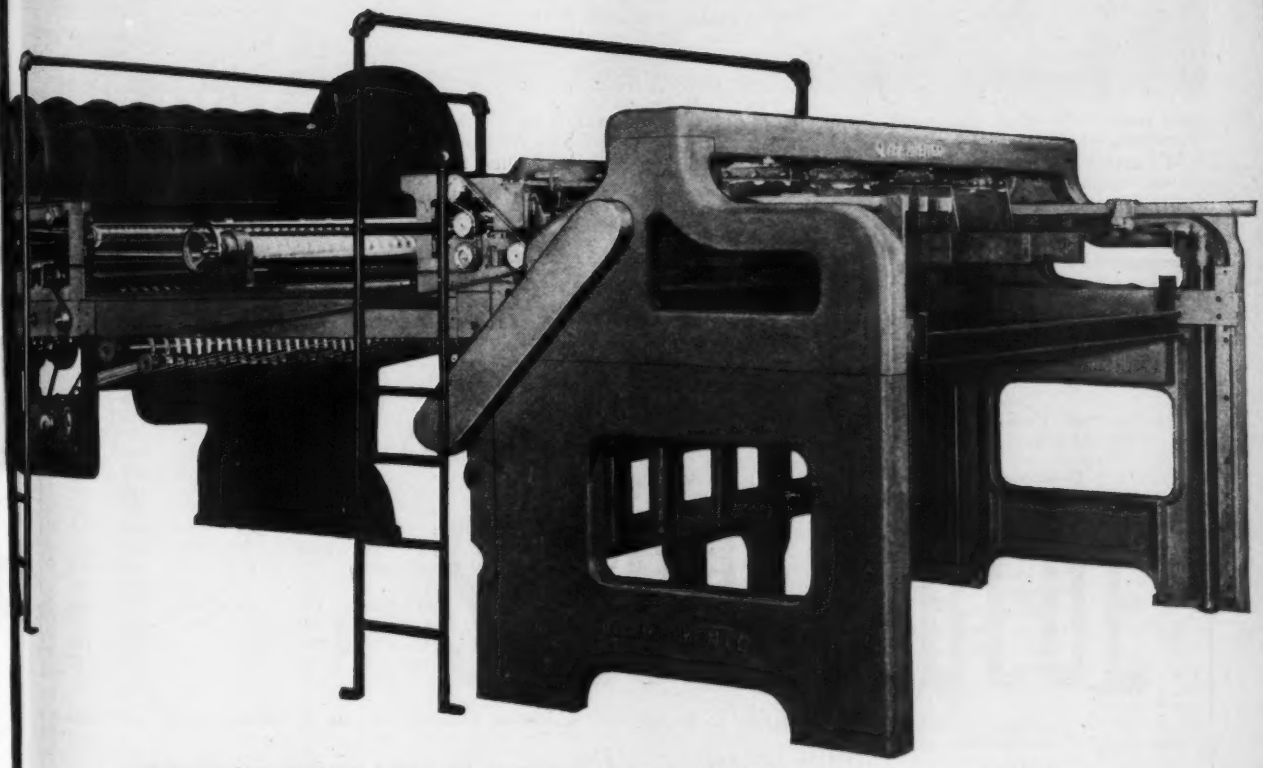
The third prong of the Institute's attack reaches down to the rank-and-file worker level, through "Yourself," a publication also distributed twice monthly to employes. Through an indirect approach, geared to interest workers, the publication takes American rank-and-file workers into management's confidence. The traditional hostility of most workers to industrial management is taken into very considerable account in the Institute's approach to the problem.

Estimates of the degree to which productivity of labor is influenced by

(Continued on page 34)

NEW

Clark-Aiken
sustained-operation
LAYBOY



slashes cutter down-time ...radically reduces broke

Here's good news for paper manufacturers who are seeking increased production and lower costs on sheeting operations.

In recent tests, the new Clark-Aiken Sustained-Operation Layboy, operating in conjunction with a new Clark-Aiken Cutter, cut single sheet 14-pound air-dried sulphite at speeds up to 400 feet per minute in sustained operation over an eight hour period without shut-downs except for roll replacement and pile removal.

On single sheet 24-pound stock, speeds up to 550 feet per minute were maintained with similar sustained operation.

In both of these tests, the broke did not exceed ½ of 1%.

If you are interested in production increases of the order of 50% to 300% on sheeting operations, it will pay you to get acquainted with the new Clark-Aiken Sustained-Operation Layboy. Write for a copy of Bulletin No. 201.

Clark-Aiken Products

Air Dryers • Bearings • Calenders Belt Drives • Chain Drives • Cooling Rolls • Couplings • Cutters Drive Units • Electric Drives • Engineering Guides • Drying Systems • Knives • Layboys • Laminators • Machine Design • Machine Repairs • Presses • Packing Boxes • Pumps • New and Recovered Rolls • Remodeling, Rolls of All Types • Shafts • Slitters Size Presses • Steam Dryers and Stacks • Wet Winders • Winders.

THE Clark-Aiken COMPANY

LEE, MASSACHUSETTS

Productivity Drive

(Continued from page 32)

labor's morale, vary from ten percent to as high as 30 percent, the Labor Relations Institute, states.

Working conditions is one of the important factors affecting worker morale, and physical environment is one of the two factors affecting working conditions.

Among the more important physical working conditions of plant and office which LRI surveys have revealed as affecting labor productivity, are:

(1) *Ventilation:* This includes unpleasant odors, stale air, too high or too low humidity, unnecessary dust, etc.; (2) *Temperature:* Too hot or too cold temperatures cut down work capacity. Conscious resentment or outright inability to work can result; (3) *Illumination:* Too much or too little light creates eye strain, affecting nerves, cutting down on worker productivity; and (4) *Noise:* Excess and unnecessary noise affects temperature, which in turn affects productive capacity.

The Institute report emphasizes that "policying of working conditions is a job that's *never* finished. Periodic checks are necessary to assure that new annoyances have not developed since the last check was made."

"Before you start applying new methods, or dusting off old, time-tested procedures to help you increase productivity," states "Foreman Facts," "there's something you can do right away that'll get you off to a good start."

Foremen are urged, in clear, light language, to adopt a "common-sense" four-step program for phase No. 1 of "Operation Productivity."

The four-step program includes the following:

(1) *Break the job down:* List all the details of the job, exactly as it's done now; (2) *Ask questions:* Why is it necessary? Who does it? When is it done? etc.; (3) *Set up new method:* Figure out how you can combine operations, or eliminate unnecessary ones to do a better job; and (4) *Application:* Put the new method into effect, after clearing with the proper authorities.

"Workers are the *only*—repeat *only*—ones who can increase productivity, and they've got to do it for their own good," states "Yourself."

"We've just got to recognize a basic economic fact, namely—that industrial management, Congress, nor any other one group is powerless to do the job. We've got to do it ourselves—individually—and together."

"What's in it for the worker?" asks "Yourself." "Everything. It means if you're making 40 bucks a week, for which you can buy—say ten things a week—your $40 will soon permit you to buy 14 or 15 things a week. And if you still only need ten things, you'll only need to spend $35 out of the $40 you make—a saving of five dollars."

Detailed information about the Institute's program can be obtained free by writing to the Labor Relations Institute, 1776 Broadway, New York 19, N. Y.

INDUSTRIAL PRODUCTION, BY INDUSTRIES

(Without Seasonal Adjustment)

[Index numbers of the Board of Governors. 1935-39 = 100]
Source: Federal Reserve Bulletin, August, 1948

Industry	1947 Sept.	Oct.	Nov.	Dec.	1948 Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
Paper and Paper Products	*159*	*163*	*165*	*157*	*163*	*163*	*167*	*169*	*170*	*165*	*149*	*165*	*165*
Paper and pulp	153	157	160	152	157	159	160	163	164	160	145	160	159
Pulp	170	177	182	168	174	178	179	182	188	183	170	192	181
Groundwood pulp	98	97	103	97	91	98	96	107	112	107	104	107	103
Soda pulp	104	107	112	107	109	110	103	108	112	111	96	110	107
Sulphate pulp	259	275	281	255	276	269	285	293	309	301	283	328	301
Sulphite pulp	149	154	159	148	151	161	153	151	151	146	135	150	145
Paper	150	154	156	150	155	156	157	160	160	156	141	155	156
Paper board	182	184	186	177	187	179	192	192	191	187	165	184	189
Fine paper	87	89	89	86	86	88	85	87	86	86	74	83	83
Printing paper	157	167	168	162	162	170	161	166	169	168	150	160	161
Tissue and absorbent paper	151	154	158	153	161	167	161	173	169	160	153	161	163
Wrapping paper	135	141	146	139	145	150	148	151	150	145	135	152	148
Newsprint	97	91	91	87	82	83	82	91	95	95	91	95	93
Paperboard containers (same as Paperboard)	...	...	...	...	...	...	...	...	...	...	...	...	...

NOTE.—For description and back figures, see BULLETIN for October 1943, pp. 940-984, September 1941, pp. 878-881 and 933-937, and August 1940, pp. 753-771 and 825-882.

HOURS AND EARNINGS OF PRODUCTION WORKERS IN MANUFACTURING INDUSTRIES

[Compiled by the Bureau of Labor Statistics]

Industry group	Average hours worked per week: 1947 July	Aug.	1948 Apr.	May	June	July	Aug.	Average hourly earnings (cents per hour): 1947 July	Aug.	1948 Apr.	May	June	July	Aug.
All manufacturing	*39.8*	*39.8*	*40.1*	*39.9*	*40.2*	*39.8*	*40.1*	*123.0*	*123.6*	*129.2*	*130.1*	*131.6*	*133.3*	*134.9*
Durable goods	*40.0*	*40.0*	*40.5*	*40.1*	*40.5*	*40.0*	*40.7*	*130.5*	*131.2*	*135.7*	*136.6*	*138.5*	*140.8*	*143.2*
Nondurable goods	*39.7*	*39.5*	*39.6*	*39.6*	*39.8*	*39.5*	*39.5*	*115.0*	*115.8*	*122.0*	*123.0*	*124.2*	*125.2*	*126.2*
Paper and allied products	42.9	42.4	42.7	42.8	42.8	42.5	43.2	119.0	119.6	125.0	126.9	129.2	131.7	132.0

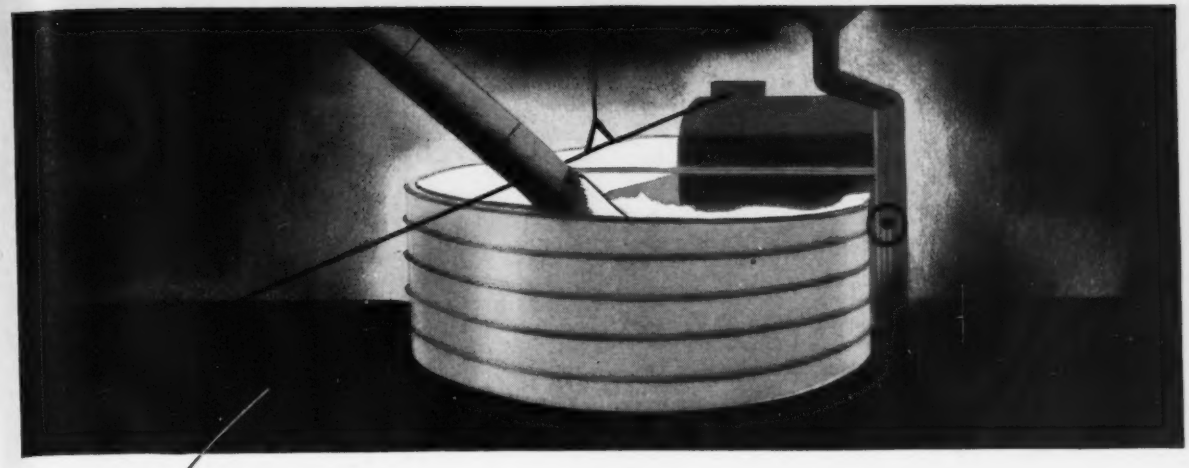
NOTE.—Preliminary September 1948 figures for average weekly hours and hourly earnings are: All manufacturing, 39.7 and 136.3; Durable, 40.0 and 144.9; Nondurable, 39.4 and 127.4, respectively. Back figures are available from the Bureau of Labor Statistics.

FACTORY EMPLOYMENT AND PAY ROLLS, BY INDUSTRIES

(Without Seasonal Adjustment)

[Index numbers of the Bureau of Labor Statistics, 1939 = 100]

Industry group or industry	Factory employment: 1947 Aug.	Sept.	1948 May	June	July	Aug.	Sept.	Factory pay rolls: 1947 July	Aug.	Sept.	1948 May	June	July	Aug.
Paper and Allied Products	*145.7*	*146.2*	*146.5*	*146.9*	*146.1*	*147.4*	*148.4*	*304.2*	*307.2*	*315.5*	*331.1*	*337.8*	*341.7*	*349.6*
Paper and pulp	145	145	149	148	149	150	....	315	317	322	343	348	358	364
Paper goods, n.e.c.	161	163	163	164	160	156	....	317	314	334	355	358	355	347
Paper boxes	138	139	132	134	131	137	....	274	280	292	290	305	295	319



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Australian Notes

The Acting Commonwealth Statistician, Mr. S. R. Carver, discloses that Australian imports of newsprint during August totaled 3,446 tons, a decrease of 718 tons on July, and a decrease of 8,709 tons on August, 1947. (Imports consisted of 2,924 tons in rolls and 522 tons in sheets.)

Other printing papers imported during the month were (figures in hundredweights of 112 lbs.): Antique, 337 (all from U.K.); imitation art, 2,060 (U.K. 1,329, Sweden 588, Norway 143); machine process coated, 691 (all from U.K.); other coated papers, 2,377 (U.K. 1,871, Sweden 292, Norway 214); monotype, 1 (U.K.); offset, 363 (Norway 155, Sweden 128, U.K. 80); lithographic, machine glazed, 2,830 (Sweden 775, Finland 744, U.K. 695, Norway 420, Austria 196); other machine glazed, 4,515 (Sweden 4,170, Finland 172, Czechoslovakia 100, U.K. 73); esparto, 301 (U.K. 221, Norway 80); one side super calendered, 14,641 (Norway 8,710, Netherlands 2,966; Sweden 2,641, U.K. 324); two-side super calendered, 330 (all U.K.); machine finished, 291 (all U.K.); other printings containing 25 percent or less mechanical pulp, 1,198 (Sweden 731, U.K. 318, Norway 149); magazine and other printing, 7,871 (Sweden 4,286, Norway 1,841, U.K. 1,081, Finland 537, Netherlands 121, Belgium 5); and glazed imitation parchment, 362 (Finland 206, Sweden 146, U.K. 10). It will be seen that during this month there were no imports of printing papers whatever from the United States.

* * *

The estimated cost of newsprint from the United Kingdom landed in Australia is £A65 a ton compared with the approximate price of £A45 10s. a ton for North American supplies. But present rationing makes it essential to purchase from Britain.

* * *

Ballarat Paper Mills, Pty., Ltd., has now been registered with a capital of £1,000,000 to produce papers of a coated variety in the former explosives factory at Ballarat (Victoria). Formation of this company follows the completion of negotiations between Associated Pulp & Paper Mills, Ltd., British Coated Board & Paper Mills, Ltd., and the recently formed Thomas Owen & Co., (Australia) Ltd. Ordinary shares of the new company will be held equally by the three sponsoring companies, and no shares will be offered for public subscription. Directors will be Sir Walter Massey-Greene (chairman), Mr. W. Harrison (vice-chairman), and Messrs. W. A. Ince, H. B. Somerset, W. D. Brookes and S. B. Holder. Specialized machinery is to be obtained from overseas.

Sir Norman Brookes, chairman of Australian Paper Manufacturers and of the Australasian Paper & Pulp Co., Ltd., announces proposals to raise £3,474,562 in new shares and debentures to finance paper-making expansions. Object of the issue is to acquire ordinary shares to be issued by the manufacturing company (Australian Paper Manufacturers) as a further step towards providing the capital required to finance the company's large expansion program. Then, during the years 1949-50, the operating company (Australasian Paper & Pulp Co., Ltd.) will issue a further £1,000,000 debentures. Debentures will be offered privately, and shares will be offered to existing shareholders at a premium of 5s. in the ratio of 80 new issues for every 100 held.

* * *

Sir Earle Page (Country Party) stated recently in the Federal House of Representatives that Australian timber could have been used to produce the £13,000,000 worth of newsprint and rayon which was imported into the country in the financial year 1947-48. He said that last year 53,000 tons of paper were made in Australia, and 152,000 tons were imported. But normal consumption called for 280,000 tons. In reply, Mr. J. J. Dedman, Minister for Post-War Reconstruction, said that a German expert on timber resources and paper was now in Australia, and the Government was willing to facilitate his inquiries if it was necessary to visit any part of the country to examine timber resources.

* * *

Australian Paper & Pulp, Ltd., reports a net profit of £128,017 for the financial year compared with the £126,996 of the previous 12 months. Ordinary dividend is maintained at six percent. Chairman Sir Walter Massey-Greene says: "The results for the past year would have been better had the Prices Commissioner kept his undertaking with the company, thereby enabling it to strengthen its reserves. . . . The company has been responsible for saving the Government and the public hundreds of thousands of pounds."

* * *

The Cumberland Paper Mills reports a net profit of £36,059 for the 12 months ended June 30, 1948, compared with £36,214 of the previous year. Ordinary dividend is steady at six percent, but directors state that present indications are for the company to go into voluntary liquidation.

* * *

B. J. Ball, Ltd., and subsidiaries (paper merchants) report a net profit of £26,210 for the year ended June 30, 1948, and ordinary dividend reduced to ten percent, tax-free. This company has free technical libraries in its interstate offices, with a wide array of books and magazines on paper and allied crafts which all those connected with allied industries are allowed to borrow. Libraries are, we understand, freely patronized.

Canadian Employment

OTTAWA — The average number of employes in the pulp and paper industry of Canada in 1947 was 49,946, an increase of 11.1 percent over the previous year and salaries and wages paid totaled $129,477,995 or 27.7 percent more than in 1946, the Canadian Government reveals, showing that employes in Quebec numbered 23,675 with a total payroll of $60,623,167 and Ontario with 16,927 workers who were paid $44,235.11. British Columbia had 4,426 workers who received $12,414,932 and the 4,918 employes in Nova Scotia, New Brunswick and Manitoba received $12,204,785.

Male employes in the industry formed 94.7 percent of the total and 5,859 were paid on a salary basis as well as 41,413 were wage earners. Of the female employes, numbering 2,674, found 1,847 receiving salaries that reached $26,286,577. Payments distributed to wage earners totaled $103,191,418.

Reports on wage earners by months show that male employes numbered 38,372 at the beginning of the year rose gradually to 44,124 in August and fell back to 40,816 in December. The number of female wage earners increased irregularly from 800 in January to 851 in October and dropped back to 827 in December.

Four-State Concord

HARTFORD, Conn.—Director Richard Martin of the Connecticut Water Commission said November 22 it was possible that New Hampshire, Vermont, Massachusetts and Connecticut would reach agreement "in about ten days" on a flood control pact on the Connecticut River.

"Committee members from the four states are all agreed on major points in the compact," which has been under discussion since 1945, Martin said.

Before the pact, calling for the construction of 16 War Department-financed reservoirs in Vermont and New Hampshire, can become effective, it must be approved by the Legislatures of the four states, and by Congress.

One point on which disagreement remains is the amount of money which Connecticut and Massachusetts — chief beneficiaries—would pay two northern neighbors in lieu of tax revenues Vermont and New Hampshire would lose on land to be taken over by the Federal government around the sites of the proposed reservoirs.

Newsprint in October

MONTREAL—Apparent total consumption of newsprint in the United States in October was 498,950 tons, an increase of 46,565 tons over October 1947, the Newsprint Ass'n. of Canada reported.

Instrumentation of a Modern Kraft Mill[1]

By FRANK H. LUDWIG
Instrument Engineer—Bloedel, Stewart & Welch, Ltd.—Pulp Mill Div.

The chip supply, which is, for the most part, sawmill waste, is carried by a belt conveyor system to seven chip silos at the Pulp Mill. Chips are fed by disk feeders to the digester filling conveyor which discharges over a tripper to the individual digesters. Of the average steam requirement of approximately 120,000 pounds per hour, 85,000 pounds are supplied by the recovery boiler, the remainder being supplied by the sawmill. White and black liquors are pumped from storage to two measuring tanks on the roof of the digester building, and are fed by gravity to the digesters.

Digester equipment consists of three 4,200 cu. ft. stationary digesters with Esco heat exchangers. Circulating pumps draw from the middle of each digester and discharge through the heaters to top and bottom. The Yarway blow valves are push button operated from the filling floor. Digesters will normally be relieved to a flash passing through heating coils in the measuring tanks and condensate or carry-over to a seal box, and is discharged to the sewer.

Stock is pumped from the blow tank to two Jonsson knotters, in which, at the present time, rejects are washed with water and discharged through a Reitz disintegrator to the screenings chest. Experiments as to the most economical disposal of Jonsson knotter rejects are still going on. Accepted stock flows to three Sherbrooke washers, operated as three-stage, with one stage on each washer, and is conveyed from the third stage at ten to twelve per cent consistency to three high density storage tanks. Cedar, Fir and Hemlock are stored separately.

High density stock is diluted in the tank cone with fresh water, and in the screen headbox with white water. Screen room equipment consists of four rows of Sherbrooke flat screens, namely, two primary, one secondary and one tailing, and two Sherbrooke deckers with two decker chests. Rejects go to the screenings chest and are made up into laps on a wet machine.

At the present time, blending is not continuous. However, stock proportioning systems are being investigated, since such a system is necessary for continuous screen room operation. Stock blending is carried out in the decker chests and in the machine room blending chest.

The pulp drying machine consists of a Dominion Engineering fourdrinier with three presses and two predryer drums. The dry end is a Flakt dryer. Flakt condensate is removed through a Midwest-Fulton unit, the flash being used in the wet end pre-dryers. Pulp leaving the Flakt dryer passes through a Lamb-Grays cutter with automatic lay-boy and is conveyed over a Toledo scale to a Baldwin semi-automatic baling press.

On the washers, vacuum is obtained by means of barometric legs ending in seal boxes in the filtrate tanks. A foam line from the top of each tank leads to a foam tank with a mechanical foam breaker. Strong filtrate is transferred to two thin liquor storage tanks. Hot water for the third stage showers is supplied from several sources. Digester heater condensate flash is discharged through nozzles in the bottom of the tank. Circulating water from the deaerator vent condenser and any excess condensate are also returned to this tank. In addition, a heat exchanger is used on the fresh water make-up.

Thin liquor is evaporated in five effect Goslin-Birmingham evaporators, feed being split between fourth and fifth effects. Vacuum is produced by a barometric condenser, using about 1200 to 1400 gallons of water per minute.

Thick liquor from two storage tanks is pumped to

[1] Presented at the 1948 Summer Meeting of the Technical Section, Canadian Paper & Pulp Association, September 8th to 10th.

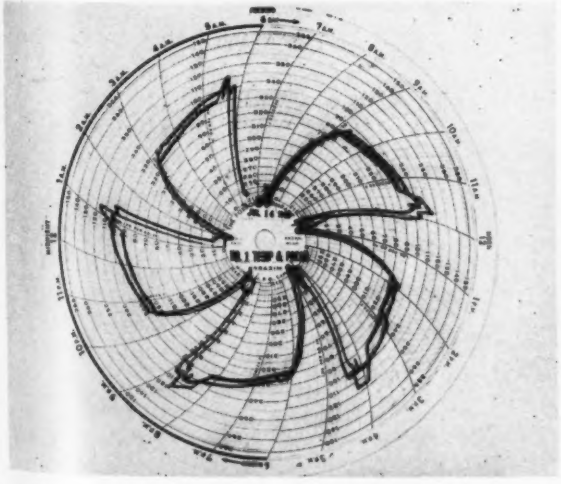


Figure 1.—Digester pressure and heater discharge liquor temperature chart.

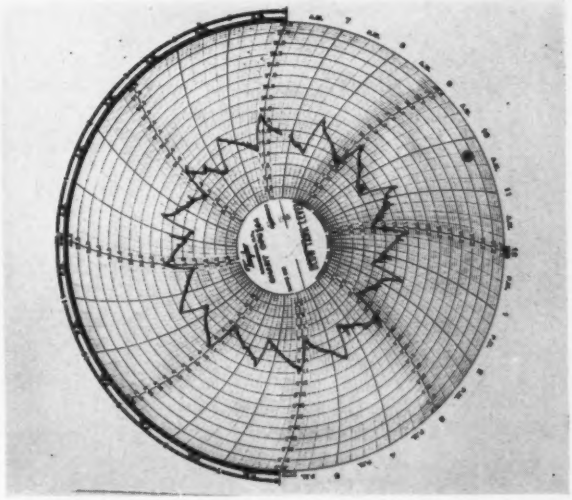


Figure 2.—Blow tank consistency chart.

the cascade evaporator which overflows to the primary heater. It is then pumped by a hydraulically coupled variable speed pump through the secondary heater to the nozzle of the Combustion Engineering recovery furnace. Salt cake makeup from storage silo, combined with recovered chemical from a Western Precipitator Company precipitator, is fed to a mixing tank above the cascade, where it is dissolved in liquor and fed with the thick liquor to the heaters. A steam-heated air heater provides hot air for the furnace. Boiler condensate is returned to a Permutit deaerating heater. Green liquor in the dissolving tank is circulated by an agitator and by a circulating pump discharging through a nozzle into the stream of smelt from the furnace.

In the Dorr causticizing plant, clarified green liquor overflows through a heat exchanger to the slaker, hot lime is fed from a small storage tank. Contaminated condensate from the evaporators is used as wash water on the lime-mud and dregs washers, also on the showers of the Oliver filter at the feed end of the lime kiln. Washed lime mud and raw lime rock make-up are burned in a seven foot diameter by 200 foot long Traylor kiln.

INSTRUMENTATION

Digesters

The weight of chips to the digesters is obtained by a Merrick weightometer installed on the inclined conveyor which feeds the digesters. As an operating guide, a remote counter is installed on a charging floor. Weight of chips per digester varies from 38 to 44 tons, depending upon wood species and moisture.

Each of the two liquor measuring systems consists of a Bristol bubble-type level recorder with high and low electric contacts. Charging valves are operated by hydraulic cylinders through four-way solenoid valves. The present charging valves are standard gate valves and were intended to be operated by the mill water supply. However, due to their tendency to stick in the closed position, it has been necessary to connect a manually controlled high pressure supply, for use in freeing them from their seats. This high pressure supply is taken from the digester circulating pump gland seal line.

Digester steam header pressure is controlled at approximately 140 pounds by a Foxboro recording controller. This was originally a proportional controller, but it was subject to quite a large pressure variation and the average pressure had to be considerably lowered to avoid blowing the relief valves at low flow rates. A reset and rate of deviation unit has been added to the controller to remedy this. A Bristol steam flowmeter measures steam to the digesters.

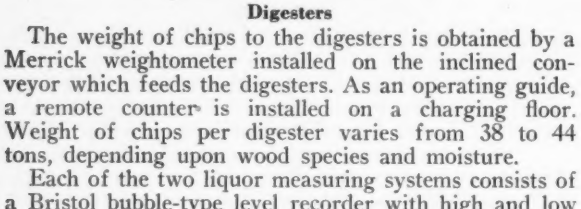


Figure 3.—Blow tank consistency chart.

As an indication of liquor carry-over from the relief, a conductivity recorder is to be installed with the cell in the seal box below the relief flash tank. A conductivity controller is also installed on the heater flash tank. At present, this merely operates an alarm in the recovery building, but a motor driven valve for dumping contaminated condensate to the sewer is now on order.

A Foxboro packaged control unit is installed on each digester for control of cooking. The temperature pressure relation controllers installed on the relief lines have given excellent service, since the start of operation. During the first few months of operation, digester pressure was controlled manually, but a tentative cam schedule has been in use for some time and has resulted in somewhat lower steam usage with more uniform cooks, higher yields and lower rejects.

There are two factors which have made fully automatic control of digester pressure difficult. In the first place, the supply of steam is frequently not adequate to handle the high requirement at the start of a cook. At such time, it is necessary to manually control steam input until digester pressure reaches fifteen to twenty pounds per square inch, in order to avoid an excessive drop in line pressure.

On cams used at present, digester pressure is brought up to 80 lbs./sq. in. as rapidly as possible. As explained before, the steam supply is the limiting factor at the start of a cook. It has also been found that after digester pressure reaches 40 lbs./sq. in., heat transfer is not sufficiently rapid for digester pressure to follow the cam during this initial rise. Since the safety valves must be located in the header and are set at 150 pounds, it is impossible to raise header pressure enough to regain control. It may be possible in the future, to maintain the header pressure at 145 pounds p.s.i. This will considerably improve the situation, but it appears that somewhat larger heaters are necessary if full control is to be obtained under all circumstances. Fig. 1 shows a record of digester pressure and heater discharge liquor temperature for a 3¼ hour cam controlled cooking schedule.

Digester temperature and pressure are recorded on a two-pen Foxboro Dynalog recorder with a three-point timer operated switch. Resistance bulbs are located in each heater discharge, and, at present, the other two bulbs on each recorder are temporarily located in No. 1 digester. This digester has six thermometer sockets and is to be used as an experimental digester. The other two digesters each have only two sockets. To date, time has not permitted any experimental work on cooking, but it is expected this will be started in the near future. An additional pressure recorder was originally located in the circulating pump discharge, but this has been transferred to the heater shell.

Washers

Washer instrumentation starts with a Taylor pneumatic transmitter type level recorder on the blow tank. This instrument has proven invaluable and appears to be well suited to measurement of stock levels. A record of blow tank level is shown in Fig. 2.

Blow tank dilution is controlled by a Bristol potenti-

ometer controller with a Bristol thermoverter. The original set-up consisted of a master potentiometer with a pneumatically set flow controller. The use of the flow controller has been discontinued, since it only served to introduce an objectionable lag in valve response, and resulted in unstable control. Reliable operation of this controller is essential since the operator has no means of continuous manual control on the operating floor, and in any case, the large and rapid changes in stock consistency would make manual control extremely difficult. This consistency control system has given very little trouble. However, there are two points in which improvement could be made.

The first concerns the location of the dilution nozzles. These are located in the cone, above the top arm of the agitator. The disadvantages are that it occasionally happens, presumably due to large masses of high consistency pulp sliding into the bottom of the cone, that an excessive agitator motor load persists for some time, regardless of the volume of dilution liquor added. This effect was serious, only at the start of operation, due to overloading of the agitator drive. Shortening the agitator arms has permitted operation of the controller well above its minimum operating point, but there is still a tendency for the control to overshoot. Also, due to dilution nozzle location, it is not possible to control cone consistency unless stock is being pumped out, or to add liquor to the bottom of the cone through the controlled valve. Introduction of the dilution liquor between the two top agitator arms with a small quantity entering below the bottom arm, would probably improve these conditions. The second point has to do with valve size. Normally, this valve operates at approximately one-eighth of its capacity. However, there are occasions when almost full opening is required for brief intervals. The obvious remedy for this would be the use of two smaller valves with positioners operating over suitable parts of the controller air output range. This would give closer control and would also serve to eliminate excessive vibration caused by operating the large valve in an almost closed position. A chart of blow tank consistency is reproduced in Fig. 3. Irregularity in the consistency record is reflected in blow tank level.

Stock to the knotters is controlled by a Bristol recording flow controller, using a rough venturi as the primary element. The controller element is a diaphragm level operator which actuates the scoop of a hydraulic coupling on the stock pump.

In general, the controller has given satisfactory service and is preferred by the operators over manual control by a valve.

There are, however, two main causes of trouble. The first of these is the plugging of the meter lines. During continuous operation, an effective purging system eliminates this difficulty, provided that the meter and piping are kept entirely free of air pockets. Two purges are in use; a black liquor purge, and a high pressure water purge. The water purge is metered at approximately .3 g.p.m. to each line, while black liquor to each line is restricted by a 1/16" stainless steel orifice. In the original installation, the mistake was made of installing the venturi too far below the meter. This often results in the formation of air and vapour pockets at the meter in shutting down, and in plugged venturi taps on starting up. The venturi will be moved in the near future, to the highest possible point in the stock line and only a few feet below the meter. Venturi taps will be installed below the horizontal, and both water and liquor purges

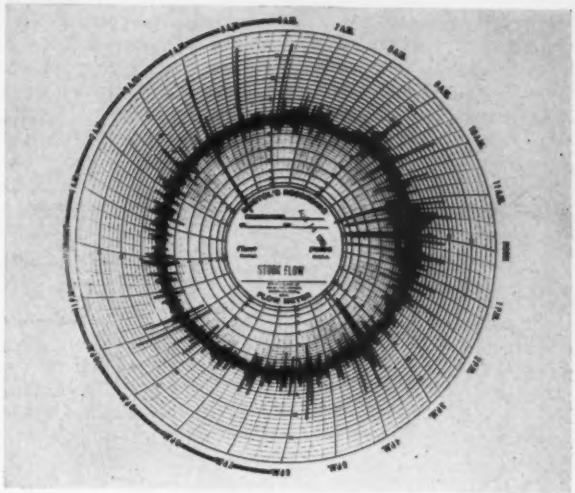


Figure 4.—Stock flow chart.

introduced in the trapped section of the piping below the venturi.

The second cause of trouble is the partial plugging of the stock pump by large uncooked slivers. The principal reason for this is due to the fact that the full speed range of the pump cannot be used without increasing the proportional response of the control mechanism to a point at which satisfactory control is impossible. Also, when the pump clears itself at the maximum pump speed, both knotters and washers are flooded before the controller can sufficiently reduce the flow. The controller is set at about 70% throttling range, with a fairly high reset rate. It is possible that the addition of a rate of deviation unit would permit considerable improvement in the above regard, and it is also felt that the use of a valve positioner on the lever operator would tend to stabilize the control. These points will be investigated, following the re-installation of the venturi. The meter used is of the bellows type and is too sensitive, particularly in view of the large surges to which the stock flow is subject. The valves on the meter manifold are being throttled as a temporary means of correcting that condition.

Figure 4 is a normal stock flow chart. Fig. 5 shows the reduction in stock flow due to plugging of the pump, The plugging can usually be cleared by momentarily stopping the pump, or by closing the pump discharge and backwashing the suction line. This is indicated by the record dropping to or below zero. On starting the washers, it has been found advisable to throttle the stock discharge valves to prevent overflowing of the first stage before it has picked up a sheet. The valve can then be opened to transfer control to the instrument.

The rest of the washer instrumentation is by Foxboro. Temperature and flow of hot water to the third stage showers are controlled by recording controllers. Water was originally heated by direct steam admitted to a hydro heater in the water line. Using proportional controllers, it was necessary to use such a wide band that temperature control was very poor. This, of course, could have been remedied by using a re-setting instrument. However, the system also had the disadvantage of losing an excessive amount of boiler condensate. In order to recover this, a heat exchanger has been installed in the fresh water line to the hot water storage tank and the

temperature controller will be installed to control temperature in the tank. Tank level is controlled by a Fisher float cage with air pilot and diaphragm valve. Transfer of strong filtrate to storage is controlled by a bubble type recorder controller on the strong filtrate tank. Recorders include a two-pen instrument for strong filtrate Baumé and temperature, and another for second and third stage filtrate levels. Indicating flowmeters on the first and second stage shower lines serve as operating guides.

Screen Room

Instrumentation here consists of a Bristol bubble type level recorder on each high density stock tank and consistency controllers of the same type as on the blow tank. Control here is not as difficult, due to the uniform consistencies in the tanks and the lower dilution nozzle locations. In addition to these, a bubble type indicator has been installed for the machine room blending chest. Some time ago a mercury manometer was connected to the indicator air line as an emergency high level cut-out for the decker chest stock transfer pump. A permanent installation is considered advisable here to eliminate the possibility of damage to the blending chest by overfilling. A Fisher float cage and air pilot operated valve controls fresh water make-up to the white water chest.

Power Supply

During the first few months of operation, the power was supplied from temporary sources. Voltage regulation was poor and at times reached extremely high peaks; as high as 700 volts on a 550 volt line. Since switching to the new Campbell River power supply, these peaks have not occurred. The high voltage caused a great deal of trouble in the Bristol potentiometers used in measuring the various stock tank consistencies. It was impossible to keep the measuring systems operating reliably, due to burning of the galvanometer pointer contacts, and the resulting high contact resistance. Since changing to the present power supply at the first of the year, these instruments have given no further trouble.

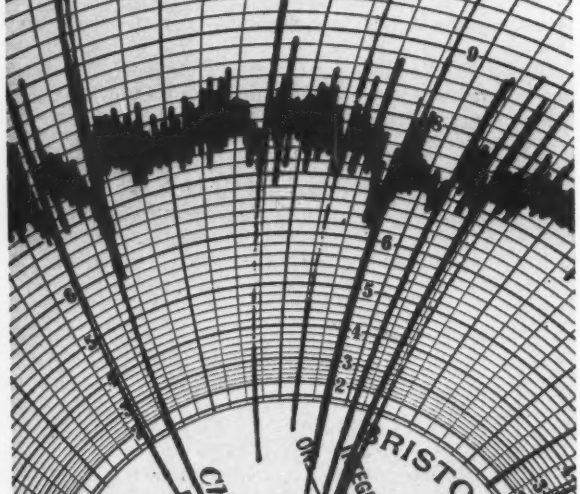


Figure 5.—Section of stock flow chart, showing effect of plugging of pump.

Machine Room

Blending chest level is shown by a second indicator connected to the same air set as that in the screen room. A two-pen instrument on each press records air pressure to back and front loading cylinders. Pre-dryer steam pressure is controlled by a Foxboro indicating pressure controller. Flakt instruments consist of a Foxboro recording pressure controller and a Bristol steam flowmeter. Indicating thermometers are also being installed at various points in the Flakt air supply and exhaust ducts.

Evaporators

Evaporator operation is, at present, semi-automatic. Thin liquor feed is controlled by a Foxboro recording flow controller, the split feed being manually adjusted, according to a flow indicator in the line to the fourth effect. Steam flow is recorded on a Bristol meter and steam input is controlled by Foxboro recording temperature and pressure controllers. A three-way solenoid valve in the output air line from the pressure controller vents the steam valve diaphragm to atmosphere in the event of failure of the first effect liquor transfer pump, thereby shutting off the steam supply. A S.P.D.T. switch, connected to both pump starter and lighting circuits, permits operation of the controlled valve when the transfer pump is not in use. By the use of suitable relays, this system could obviously be extended to include other pumps. A two-point conductivity recorder is at present being installed on the barometric condenser seal box and the contaminated condensate pump discharge to the causticizing plant. Thin and thick liquor storage tank levels are given by two-pen Foxboro recorders. Float cages with air pilots and diaphragm valves are installed ahead of the first, second, third and fourth effect condensate flash tanks, and the first effect liquor flash tank. Liquor level in the cascade evaporators is accurately maintained by a Brown indicating temperature controller and drive motor load is shown by two recording ammeters.

Recovery Furnace and Boiler

Temperature of liquor to the furnace is controlled by Brown recording controllers on the primary and secondary liquor heaters. Two Bailey three-pen instruments record steam flow, steam temperature, boiler outlet temperature, air flow, furnace draft and cascade outlet temperatures. Drafts throughout the boiler are indicated on a Bailey ten-point gauge on the operating panel and a two-point guage located on the top floor. The boiler level controller is a Bailey and a Reliance Eye-Hye on the operating floor indicates boiler level. A Leeds & Northrup electrical draft controller operates a hydraulic coupling on the induced draft fan. Feedwater heater instruments consists of a Fisher Wizard pressure controller and a Yarway level indicator with a low level alarm. A Bailey synchrometer, to measure feedwater flow and a boiler steam pressure recorder have recently been installed, and a desuperheater has recently been purchased for the main steam line. A conductivity meter with signal contacts is to be installed on the condensate return line. Cells on each digester heater and the evaporator first effect condensate are to be connected through a multi-point manual switch. Also, a recording flowmeter is under consideration for the thick liquor to

the cascades. A Foxboro "Rotax" controls day oil tank level and temperature of oil to the furnace and lime kiln is controlled by a Spence regulator.

Foxboro controllers are installed on the disssolving tank. As originally installed, the level controller operated the dilution valve and the Baumé controller the green liquor transfer pump. This did not prove satisfactory because with existing line and pump sizes, it was not possible to maintain an exact level in the dissolving tank, drops in level resulting in wide Baumé variations. The controls were then reversed, and, while it has not been possible to eliminate cycling of the Baumé record, the cycling has been reduced to less than 0.8 Baumé. The Baumé recorder, when first installed, gave continuous trouble, due to plugging of the sample line, which could not be corrected by steam purging, and due to liquor blowing back to the air set and reference chamber. A six inch diameter measuring chamber with a ten inch open-top overflow chamber has been constructed. Liquor inlet and outlet connections were increased from ½" and 1-¼" to 1" and 2-½", respectively. Bubble pipes were welded in a 7" diameter splash cover with four supporting arms. This assembly rests on the overflow chamber in a position which leaves the liquor overflow visible. Bubble pipes are of stainless steel and are connected by unions for easy removal. The air set and reference chamber have been mounted a few feet away from the measuring chamber for protection from vapour and the occasional liquor splash when the sample line is being steamed out. Since these changes have been made, very little trouble has been experienced, although occasional cleaning of bubble pipes is necessary and it is advisable to steam out the sample line once a day. Recently, it has been necessary to increase the green liquor Baumé. This has resulted in rather rapid crystallization in the transfer line, particularly in the vicinity of the pump and valve. It is proposed to install a connection to the pump suction for washing the line out with contaminated condensate.

Dorr Causticizing Plant

Raw green liquor flow to the clarifier is controlled by a Bristol recording instrument, using an orifice plate as the primary element. It was thought that difficulty might be experienced with build-up of sludge ahead of this plate, but this has not, so far, given any trouble. However, it is necessary to use a continuous water purge in order to keep meter lines clear. The meter is of the bellows type and here, also, as a temporary expedient, it has been necessary to throttle the manifold valves in order to prevent hunting of the controlled valve.

A Foxboro recording temperature controller is installed to control steam to the green liquor heater. Temperature recorders are installed on the slaker and on the contaminated condensate line to dregs and lime mud washers and the Oliver filter ahead of the kiln. Foxboro indicating level gauges are installed on raw green liquor, white liquor and weak wash storage tanks.

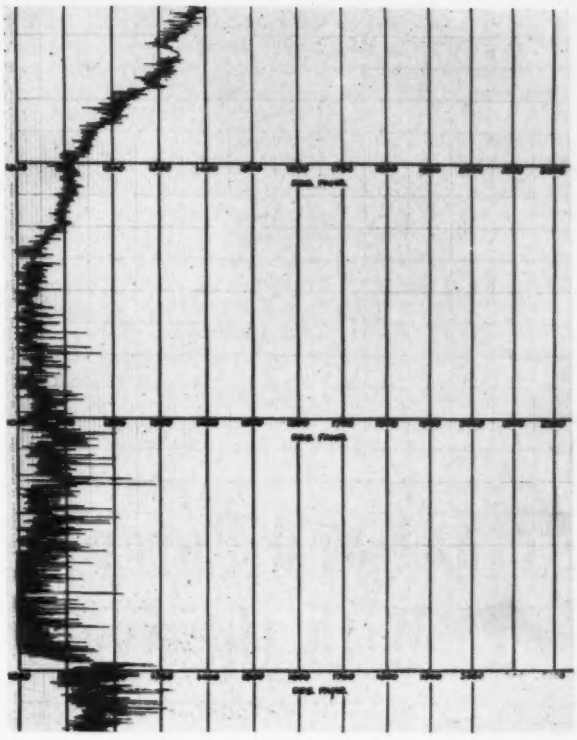


Figure 6.—Lime kiln temperature chart, showing effect of lime build-up on thermocouple and high slip ring contact resistance.

Lime Kiln

Water flow to the Oliver filter showers is measured by a Foxboro indicating flowmeter. Instrumentation supplied with the kiln includes a Leeds & Northrup indicating and recording temperature controller with a thermocouple located approximately eighty feet from the discharge. With this instrument is an electrically operated control unit with automatic reset for fuel and a unit manual reset for air control to the burner. Automatic control of temperature with this equipment has not been possible to date, due to ring formation in the kiln and lime build-up on the thermocouple, also due to excessive contact resistance at the thermocouple slip rings. Kiln speed is to be increased and a housing is to be built over the slip rings. It is hoped that these changes will correct the ring formation in the kiln and reduce dirt and corrosion on the slip rings to a point at which adequate cleaning is practical. Some experi-

INDUSTRIAL DEVELOPMENT

Paper Trade Journal, in this section, makes space available for discussion of technical and operating problems. Space is also available for the presentation of independent studies and research on technical and engineering subjects. Feature stories of paper mills, converting plants and inter-related industries will be included. An invitation is cordially extended to all who are qualified to discuss these subjects. Original manuscripts submitted exclusively to Paper Trade Journal and found suitable for use in this section will be paid for immediately upon acceptance. Submit manuscripts to E. P. McGinn, Industrial Editor.

mentation must also be done to find a material for the slip ring brushes which will provide good electrical connections without excessive wear on the rings. Some consideration has been given to the use of a radiation pyrometer for the hood, in place of the thermocouple. However, it has been claimed that radiation pyrometers, while suitable for cement kilns, do not give satisfactory results on lime. It has, therefore, been decided to make a further effort to obtain a satisfactory temperature measurement with the present system before trying out the radiation pyrometer. Induced draft is controlled by a Leeds & Northrup controller, operating a butterfly valve and recorded on a Hays recorder. A Leeds & Northrup two-point temperature recorder measures the outlet gas temperature and the temperature in the chain secion of the kiln. The latter thermocouple is in a cleaner location, and normally is not subject to build-up of lime. A reasonably satisfactory record is therefore usually obtained at this point. Here, too, better results should be obtained after the collector ring housing has been built. Fig. 6 shows a section of the record drawn by the temperature control instrument. The normal operating temperature at this point is approximately 1600°F. High slip ring contact resistance is indicated by the "hunting" of the pen, whereas an extremely low recorded temperature is evidence of lime build-up on the thermocouple.

Miscellaneous

Steam supplied by the sawmill is measured by a Bristol two-pen flow and pressure recorder.

On the mill water supply are a Taylor pressure recorder and a Builders-Providence venturi meter and a second Builders-Providence meter is installed on the water line to the sawmill.

In addition to the above instruments, several steam flow and pressure recorders are still required to obtain a satisfactory heat balance throughout the mill.

Actual and Potential White Water System With the Sveen Pedersen Saveall

By O. F. HUTCHINSON
Bulkley, Dunton Pulp Co., New York City

The opportunity to present this talk is welcomed by the author in order to bring forth experience gained in the past ten years in various paper mills and on many different types of white water systems throughout the United States. This experience was gained through installation and subsequent observation of the Sveen Pedersen Flotation Saveall, a system of clarifying white water simply and efficiently, which has become one of the most prominent savealls in use throughout the world. It is also intended in the last part of this talk to give a resume of what is expected in the future, due both to the ever growing knowledge of improved operating conditions with this type of clarification system in various mills and the action now being taken by many of the States and the Government on Stream Pollution.

It seems needless to comment that the author has come in contact with some very crude and some very elaborate white water systems in the various mills. What is meant by a crude system is one having only an inclined wire screen, more commonly known as a "hillside". The so-called clear water from these cannot be reused except for stock dilution purposes. Many of the mills just let this water go to the river. Almost in this same category are the mills that have a settling tank from which water is pumped for beater furnish. This is considered a poor system, for although the settling tank may be efficient, unless beater filling and dumping are maintained at regular intervals, efficiency drops off. Also, with regular withdrawal from the bottom the tank will overflow thirty or forty minutes out of an hour to the sewer, wasting valuable solids, heat and water.

An elaborate but poor system from point of economy is one where the white water passes to a rotary screen

SVEEN PEDERSEN FLOTATION SAVE-ALL
WHITE WATER DATA — AMOUNTS IN LBS. PER 1000 GALS.

TYPE		SOLIDS IN	SOLIDS OUT
BOARD			
CHIP		1.6 to 2.5	.08 to .303
CARTON	L	3.7 to 6.4	.15 to .317
	F	1.8 to 5.1	.18 to .287
LINER		2.6 to 3.6	.08 to .25
BOOK			
CLAY		7.2 to 17.9	.10 to .312
CARBONATE		12.5 to 38.2	.17 to .404
BOND			
RAG		1.3 to 3.1	.033 to .218
WOOD		4.0 to 12.4	.12 to .29
CARBONIZING		6.6	.07 to .18
CIGARETTE		4.7	.15 to .26
CONDENSER		3.8	.04 to .10

TYPE	SOLIDS IN	SOLIDS OUT
NEWS		
CATALOG	11.2 to 27.3	.22 to .48
PRINT	7.0 to 9.2	.17 to .38
GLASSINE	1.0 to 2.3	.08 to .19
TOWEL		
KRAFT	3.7 to 4.6	.04 to .12
OTHER	2.7 to 6.2	.1 to .23
TISSUE		
FACIAL	3.1 to 4.5	.03 to .18
STORE	3.6 to 5.2	.1 to .3
TOILET	2.6 to 5.8	.14 to .21
WAXING		
OPAQUE	3.7 to 9.1	.03 to .23
REGULAR	1.6 to 3.5	.03 to .15

Figure 1

saveall. The effluent from this travels to a series of settling tanks. The effluent goes from the tanks through a rock filter bed and and then to the river. If all that equipment has to be used to clarify the water, why not reuse it?

Actually, it would make little difference how simple or involved the system might be, outside of management's desires, if the system were effective. As proof of the ineffectiveness of most of the present white water systems, many of the mills are now becoming worried about their polluting the streams and, on our side, an increase in all types of clarification systems is at hand. Anyone who has any kind of an idea for eliminating solids is fostering false hopes and it is inevitable that many mills will spend

Presented at the meeting of the Miami Valley Division of the American Pulp & Paper Mill Superintendents Ass'n., October 21, 1948.

needless money and many of these inventions will fall by the wayside.

For example: One new process stresses strongly the reduction of solids to less than three-tenths of a pound per thousand gallons with the present furnish on their first unit. Upon investigation, one finds this to be an all fibre furnish and later on the statement is made that when the installation has to handle an occasional filled sheet the process will reduce filler solids to less than four-tenths of a pound per thousand gallons. This brings the total to seven-tenths of a pound for filled sheets. Nothing of value here to mills seeking relief from stream pollution.

Under present conditions, and considering future plans, *any part of a white water system* needs to be very good or it will not exist. The statement is made "any part of a white water system" for the solution to waste and pollution cannot be obtained with only the purchase of an efficient type of white water clarifer.

From this time forward any white water clarifier has got to reduce solids to a content of .3 of a pound per thousand gallons of filterable solids (about 25 ppm) to be in the running and if it cannot get this low, subsequent treatment must be used or the process rejected.

There should be no doubt in your mind as to what the writer refers when mention is made of an efficient white water clarifier. The accompanying set of figures *(Fig. 1)* shows the results obtained with use of the Sveen Pederson Flotation Saveall in many mills on many types of paper and board. Where only one figure is noted, it is the average result of only one mill, but where more than one is noted, the figures cover minima and maxima of several mills making the same product. This is in no sense a coverage of the industry because some mills do buy other types of equipment, but is shows what is being done and what can be done.

These measurements of solids in pounds per thousand gallons of filterable material are so arranged for the figures on the left to signify the influent to the Sveen-Pedersens, and the right hand figures to notate the filterable solids in the clarified water. It may be surprising to note the small amount left in the water and it would not be the first time such figures were looked upon with surprise and disbelief. One of the first papers to be delivered on Sveen-Pedersen in the United States was prepared and presented by Ward Harrison at the 1939 New York TAPPI Meeting and was thought to be so unbelievable that the group actually laughed. Since then many more presentations have been made which verify his findings.

As the purpose of this talk is to deal with white water systems, only a brief description of the Sveen Pedersen process will be given at this time, but will be gladly explained in more detail upon request.

The operating principle of the Sveen Pederson Flotation Saveall is that of dissolving air under pressure in the collected excess white water, adding a flocculating agent to enable a greater air buoyancy, and releasing to atmosphere in a rectangular tank where the liberating air bubbles carry the fiber and filler to the top. This mat is skimmed off and delivered back to the stock system, preferably as close to the paper machine as possible. The clarified water is drawn through tubes, in the bottom of the unit, to a chamber on the side from where it is returned to the showers, beaters or for any other use. This water is guaranteed to contain less than one-half pound of filterable solids per thousand gallons of water and runs around .1 to .3 of a pound as shown on the chart.

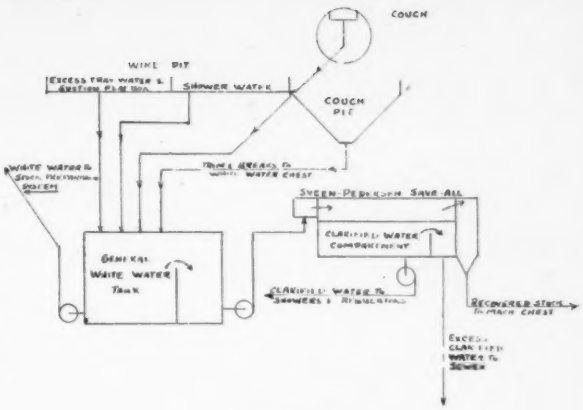


Figure 2

In discussing actual white water systems, it seems proper to cover each part separately and then see what can be assembled as the best. The first part of any white water system should be the fourdrinier wire or cylinder mould. Here, the greatest loss in the manufacturing process occurs and it is also at this point the first chance occurs to reduce this loss and keep the paper making solids going to market.

Various aids are being used to increase wire retention —those most familiar to the author being the Sveen Glue solution and Activated Silicate. This is accomplished by the addition of a relatively small amount of the flocculating agent to the stock between the machine chest and the wire. When properly administered and mixed, the retention of fillers, fibers and rosin will improve as much as one-third. Some mills have objected to the use of such aids but in no case in the writer's experience has there been a loss by their employment. Usually increased retention, better sheet formation and longer wire life result. Just considering the factor of increased retention, is enough to warrant the use of such materials. Mills having cylinder machines also come in this group, but it is poor practice to use such an aid yet have such poor mould straps that twice as much gets away than is retained.

White water trays under the wire are in general use, but still some mills persist in not reusing the richest white water first. It has been observed where the white water from the wire pan near the slice is funnelled to

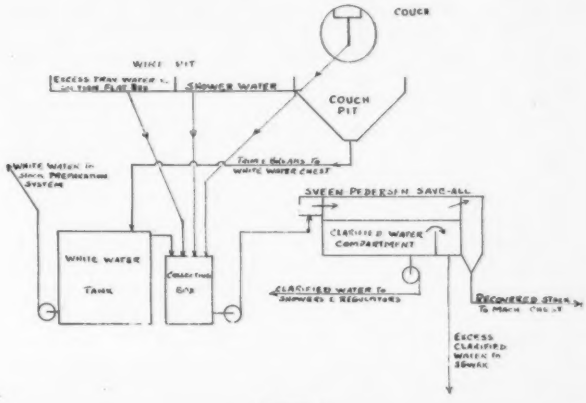


Figure 3

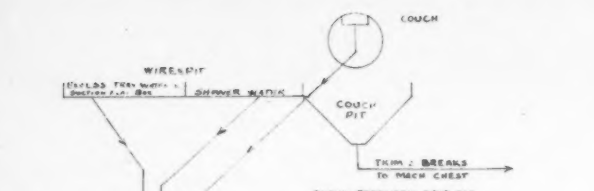


Figure 4

the wire pit and the water from the suction box and lower end of the wire run off and used for makeup. Incidentally, this pit contained an overflow pipe which put the excess of the rich white water to the sewer. Not even to a saveall? No, there was a wall in the pit near the couch pit and the excess white water was supposed to flow over this to the beater furnish tank and the overflow from that tank to the saveall—but there was usually enough stock from the couch break on this wall to form a nice dam!

Speaking of couch breaks, we now come to one of the hardest points in the white water system on which to convince a Superintendent as to the logical change that should be made. At least half of the mills, and perhaps more, now take their nice thick stock at 15 per cent, mix it with the white water, thinning down to probably two percent and then put it through the saveall which may or may not *save all* and send it back to the machine chest at three percent or more consistency. Why? Most objections heard refer to throwing the machine chest consistency out of balance. This is easily taken care of by an automatic shower arrangement that goes on at the time of a break and maintains the desired ratio of solids to water. With this setup good agitation must be provided for the couch pit. The paper machinery manufacturers are now recognizing this fact and all conventional new machines are being installed and designed with a couch pit from where the stock goes back to the machine chest. There is little sense in thinning heavy stock only to thicken and thin again. If this procedure is being followed, many pounds of valuable solids are being lost needlessly. Suction couch and suction flat box water is small in volume but rich in solids. Mills installing new machines and those attempting to satisfy state pollution requirements are putting this water through their savealls. No standard practice was noted for collecting white water in machine pits. Some wire pits were found to be entirely open from breast roll to couch with the excess white water going to the saveall. As an extreme to this, the writer recalls an elaborate pit divided into three sections. The first was for shower water, second for lean white water and third for rich white water. Although this pit was rather complicated, it satisfied an important function—that of returning the richest white water immediately to the paper machine. Shower water in this case was going to the sewer, but this will have to be changed because this particular machine makes a filled sheet and the solids in the shower water cause excessive stream pollution.

Before leaving the paper machine the increased interest in low volume showers should be noted. If the shower water is to go to the saveall, and most of the mills will have to clarify it in order to meet future standards, this water volume must be reduced to a minimum. This is a very important source of reducing total volume of white water and a very material aid in closing up a system.

From here on, in the white water system, we have a number of tanks, pumps and a saveall. Three mills visited do not have any system from this point and will have little trouble in paying for their saveall installations. These storage tanks, in most of the present white water systems, hold white water but, in the future, clarified water will have to be stored for reuse, especially for mills having short runs of paper.

Several flow diagrams have been charted in order to show the various systems now in use.

Figure 2 shows the excess pit water, suction couch water all going to a common collecting tank into which also goes the trim and couch break. You will note the endeavor to return the richest water to the machine system, but what happens when on an order or color change the beaters cannot be furnished with this return? In this system a partition in the tank is provided in order to keep the saveall system supplied and, in order to control tank level, a recirculation line is returned from the Sveen Pedersen clarified water chamber.

Figure 3 is a step forward but is again apt to leave the short run mill with stock they should use but cannot. This particular mill runs the unused recovered stock over a wet machine when beaters cannot be furnished. The laps are stored for future runs but, due to dirt, difficulty of color matching to subsequent runs, and the loss from the lap machine, the solids lost are very high. This system does have good adaptation for a machine running continually on the same grade and, where the mill does not want to tie up their machines while revamping the couch pit so the couch break could go back to the machine chest.

Eliminating the couch pit stock presents *Figure 4* and this is probably the most common system used. A loss factor is still present unless the saveall is designed large enough to handle the full flow when the beaters are not being furnished or where changing to another grade.

Figure 5 illustrates a good efficient white water system designed for versatile use. It is being used by quite a few mills, particularly those with frequent color and grade changes. It entails a slightly larger size saveall than would be required if the beaters were furnished from part of the white water but the increase in original investment is negligible and is recovered in eventual operation, many times over. The clarified water can be either reused or sent to the river. With an efficient saveall, no objection is encountered from the State Boards unless the B.O.D. is too high, in which case additional treatment from reduction is necessary. We will be seeing and using more of this type in the future.

To carry this *Figure 5* further, we have an installation of this type where the excess clarified water is mixed with the raw river water before filtering and the mill actually runs to the river 125 to 200 gpm. of filtered water in order to please the State where it is located. Expensive? No, and it accomplishes the elimination of this mill's pollution problem. In fact, it is only about one-hundredth of the expense borne by each individual mill involved in a group experiment of putting sodium nitrate into an Eastern river in order to keep the B.O.D. down and the public along the river quiet.

Turning to cylinder machines, *Figure 6* represents a simple white water system. The drawing shows only one Sveen-Pedersen, but where Liner furnish is valuable enough, a separate Sveen-Pedersen is installed to clarify the Liner white water. Beaters are furnished with untreated white water with the excess being clarified for reuse. Separate tanks are shown for illustrative purposes and, of course, a general divided tank will suffice.

Figure 7 shows a slightly more involved system where the top and bottom felt water is divided. The top felt shower pit excess is used as Liner pit makeup and any in excess of that joins the bottom felt water in makeup for the filler pit. Both liner pit and filler pit furnish water for beater supply, the excess going to the savealls. The clarified water from the savealls returns as shower water with all fresh water needed coming from float regulated valves in the clarified water chambers of the Sveen Pedersen.

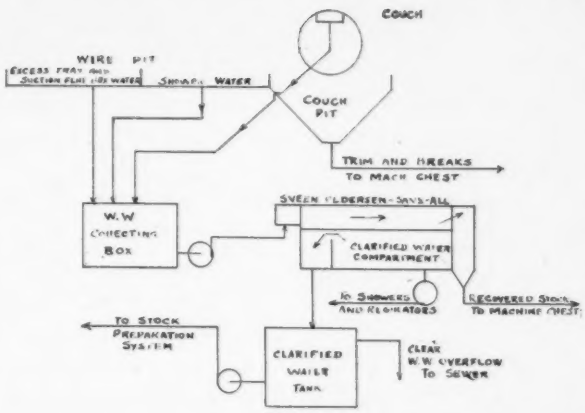


Figure 5

Potential

Before trying to work out a white water system that will place a mill in good stead for the future, we must first consider what requirements will have to be met. As these start with the recent Act passed by Congress, one might as well start at the top and work down to the man who has to pay the bills. This Act—Public Law 845—was enacted "to provide for water pollution control activities" and sets up a program for helping the States establish and enforce pollution laws in workable cases, aid in research for disposal problems not solved at present and, if necessary, prosecute in cases of non-cooperation. No definite requirements have been stated and, for the time being, it is imagined the Surgeon General will just go along with the present State Laws. Investigators of conditions contributing to stream pollution will be made and all industries and municipalities shall come under the findings. Some of us feel the Pulp and Paper Industry has been unfairly singled out as the only offenders and the Act should serve to adjust responsibilities in proper order. However, the day of just talking about the situation is past. Each State differs in its limitation of pollution. Individual Sections of the U. S. fairly well know what requirements will have to be met. In all our work to date no requirement in writing has been viewed as being presented to a mill for absolute performance. Most of the specifications have been verbal and the sanctioning of a mill effluent treatment has also not been seen in writing. This is probably due to the States not being exactly sure as to ultimate requirements needed.

Among the State requirements we find, limitations on *Effluent Volume, Total Solids, Suspended Solids, Settleable Solids, Non-Settleable Solids, Dissolved Solids, and B.O.D.*

Some of the States are regulating the effluent both for volume and solids content by the size of the stream the mill dumps into. Others use a set percentage reduction of all solids regardless of the size of the stream and figure B.O.D. by population equivalents. A few mills who have really put a great deal of effort into cleaning up their effluents were penalized by this general reduction. Consideration should have been given the mills with solids under a pound per thousand gallons in their effluent for their adherence problem was greater than the mills having more solids in their effluent. In only one State have we had a turbidity requirement to meet, but this may be added as the abatement progresses. Most of the mills are now members of the National Council of Stream Improvement and thereby are realizing the gains made in the Council's investigations. However, it is still up to the mill to make its own choice of white water treatment.

From the above it seems logical that in developing a potential system of merit, the least number of factors to be considered are:

(1) Reduction of total circulating volume of white water plus all possible reuse of white or clarified water and finally the lowest effluent possible from the mill. (2) Maintaining suspended solids below 25 ppm in all clarified water. (3) Reduction of all dissolved solids possible. (4) Further reduction of B.O.D. in reduced effluent volume. (5) Set standard for lowest turbidity figure possible and maintain.

With these points in view, management must then consider their side of the picture. This could be accomplished easily if cost were no object. A three-million dollar plant cannot well afford a million-dollar disposal plant. Most of the changes made around the paper machine are not expensive and will usually pay for their installation in a short period of time.

Beyond the machine comes the Saveall, or perhaps it would be better to say, clarification unit, for Saveall is rather ambiguous. In selecting the clarification unit, the mill must consider: (1) Expense involved; (2) Qualifications of unit—(a) Will it meet with State approval? (b) Will it allow maximum reuse of recovered solids without affecting the sheet? (c) Will it reduce clarified water that can be reused in quantity? (3) Space required for installation; (4) Operating and maintenance expense. Ease of cleaning and order changing.

We now have a fair-sized problem, so let us see if we can effect a solution.

Increasing wire retention will cut down the solids as much as one-third with other benefits being derived. This is a simple and worth while addition. Redesign of wire pans and pit to allow reuse of richest white water first. Installation of low volume showers, of course with adequate wire cleaning. Redesign of couch pit so as to deliver couch break back to machine chest or best possible point in the stock system.

Cylinder machines likewise should be investigated for low volume showers for both moulds and especially felts for a large reduction in water can be made with adequate cleaning of felts. Reuse of all possible white water is desirable because it is in the board mills that the solids are usually the lowest but the pollution problem the greatest.

For both fourdrinier and cylinder machines a selection of a proper clarifying unit is now necessary. This should

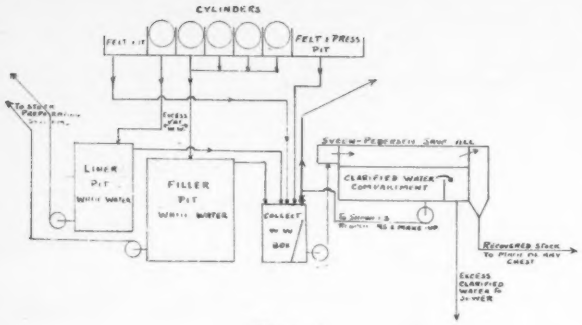


Figure 6

not be difficult as the Sveen Pedersen Flotation Saveall will satisfactorily answer and fulfill all the requirements. Let us return to *Figure 5* and see what merits it has. All the excess white water, tray water, shower water, suction couch water is sent to a common collecting box. The water is picked up by the pump and air introduced under pressure. This air is initially introduced to float the stock but it is also at this point that part of the B.O.D. is being satisfied. On an average 40 percent, but figures have run well over 60 percent with one company using all virgin fiber furnish reporting 90 percent plus.

The solids, nearly all suspended and varying amounts of dissolved (depending on the treatment) are flocced and when the white water enters the flotation chamber, they float to the top. The resulting mat of solids is skimmed off at a consistency of two to three percent and delivered back to the machine chest in most instances. The clarified water (usually below 25 ppm) is drawn off and reused on the machine for showers, regulators, etc. The excess not used goes to a storage tank where it can either be used for beater furnish and dumping or sent to the river. As an example of this, allow the quoting of an article that appeared in a recent issue of *Pulp and Paper* magazine.

"The Sveen Pedersen flotation type Saveall supplied by Bulkley, Dunton Pulp Co., Inc., is an important unit for this mill, with average recovered water consistency .3 lbs. fibre per thousand gallons of water. Fresh water and fuel consumption are thereby reduced, which are important factors to this mill. Recovered fiber is returned to the dump chest where it is thoroughly mixed with the virgin stock from the Hydrapulper. The recovered water goes to the Fourdrinier showers and for dilution purposes. It should be mentioned here that the fresh water supply for this mill is obtained through four deep wells owned by the mill. Average fiber loss from the entire machine is under 300 lbs. per day. Total water used is 300,000 gallons per day. So we have here a partially closed system, but the small effluent from the mill is used a great part of the year in dry weather as an irrigation for surrounding citrus and walnut groves. There is no river at this location and this effluent is greatly welcomed by the ranchers as it created a valuable humus as well as providing needed water."

On cylinder machines a flow diagram something like *Figure 7* is advantageous. Every gallon of water is guarded and utilized to the utmost with two Sveen-Pedersens, the only extra fresh water to balance the system being added at the clarified water chambers of the savealls. As this is perhaps more expensive than some mills only running a top liner might consider, the system can be worked out with only one Sveen Pedersen with fresh water having to be added at the saveall clarified water chamber and at the top felt showers.

The excess top felt water first satisfies the demand of the Top Liner Pit. Any excess over that goes to the Filler Pit. Beaters are furnished from both pits with the excess from the filler pit going to the Sveen Pedersen. Bottom felt and press water, plus extractor roll water also go to the Sveen Pedersen. Still considering only one Saveall the recovered stock goes back to the filler chest. The clarified water is used on the felt showers and filler pit makeup, with any excess being recirculated through a heater to warm fresh water coming into the top felt shower pit. To further aid in lowering the final affluent from the machine, it is suggested an additional tank be installed so that after the machine is shut down the vats can be emptied into the filler pit, run through the Sveen Pedersen, the recovered stock taken back to the filler chest or beaters. The clarified water can and should be stored in the tank provided for startup purposes.

It will be found upon investigation that the Sveen Pedersen Flotation Saveall will enable any mill to economically close up its white water system and thus meet the important requirements which have now, or soon will become necessary. In other words, it covers the previous points listed.

(1) Expense involved—for the results obtained, it is the cheapest unit on the market and can be installed with about the same cost as other units placed in the mill.

(2) Qualifications of unit.

(a) Will it meet with the approval of various State governments? Up to the present time and to the best of our knowledge, the clarified water from the Sveen Pedersen has been acceptable to all the States in which they are operating.

(b) Will it allow maximum reuse of recovered solids without affecting the sheet?

Yes. The solids are returned at 2 to 3% consistency to a point near enough to the machine to enable the Saveall to be effective up to the machine shutdown. As the white water cycle is only of ten minutes, duration, very little stock is not utilized.

(c) Will it produce clarified water that can be reused in quantity? Yes. The clarified water is guaranteed to contain less than one-half pound of filterable solids per thousand gallons of water and will normally produce water with much lower solids. The water can be reused on showers, regulators and in nearly all places where fresh water formerly was used. In fact, many times this clarified water is of better quality than that coming from the fresh water supply.

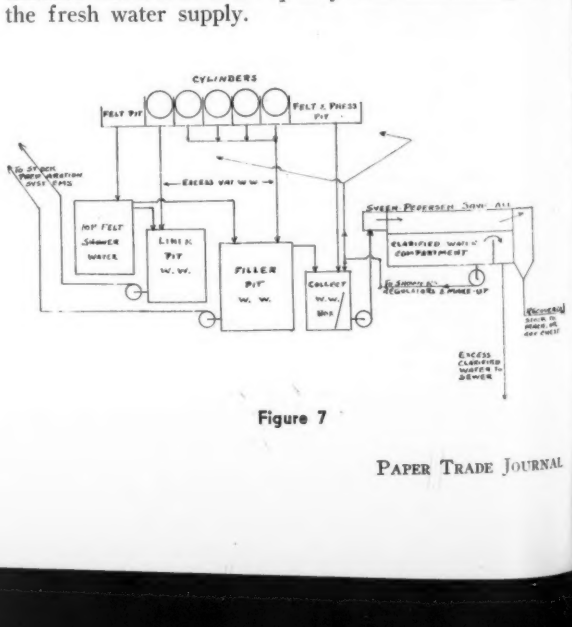


Figure 7

(3) Space required for installation. The space requirement is slightly in excess of some of the other units but in no case has there ever been a problem of not having room in a mill to enable a short cycle system. In many comparisons the cubic area per hundred gallons of white water volume is less.

(4) Operating and maintenance expense, ease of cleaning and order changing. The only moving parts of the Sveen Pedersen are the scraper blades moving at about five feet per minute. These are driven by a one-half horsepower motor. The maintenance is practically nil and in general the extra power should not exceed 10 H.P.. Chemical costs are now running about one to one-half cents per 1,000 gallons of water treated. The Sveen Pedersen can be cleaned easily since it is an open tank. Because of the rapid white water cycle, it is particularly adaptable to short orders. The Sveen Pedersen Flotation Saveall will usually solve most white water problems with sufficient savings in recovered stock and water to pay for the installation within one year.

We do not feel that we can rest on our laurels. On our side of this new situation continual effort is being expended for improvement of our product. A more efficient pressure valve is almost ready for use, new and more powerful flocculants are being developed. Investigations of further reduction of B.O.D. and production of utmost clarity of water, are being carried out. To further assist the mills, the formulation of an Engineering Service in conjunction with the Sveen Pedersen Saveall is now being considered. It will not interfere with nor be used in consulting engineer's capacity.

In closing, it is well to mention the fact that just developing a good white water system is not sufficient. An individual must be assigned the responsibility of keeping it operating efficiently at all times.

Also, the writer believes it might be of advantage to the Industry for a central bureau to be set up to assemble data on accomplishments being made by all of us. This might well be sponsored by the Superintendents Association since it would then be able to inform the mills of what was being accomplished and by what means. It would also serve another purpose. The public, at the present time, is the worst offender in stream polluting through municipal waste. It is doubtful if they realize this or have the right concept of the correct utilization of a stream. They do know their sense of odor, their sight and gaming instincts have been offended. Therefore, when we do a good job, whether it is a mill or any supplier, some sort of a good public relations plan should be set up to let the public know about it. The associated suppliers should go along with the mills in this program and by getting together should be able to educate the public to the fact progress has and is being made and that the streams and rivers do have a purpose in Industry for the transportation of waste so long as it does not create a menace to health and pleasure, or become a nuisance.

Literature

International Nickel Co., Inc., 67 Wall street, New York 5, N. Y. (In Canada, address International Nickel Co. of Canada, Ltd., 25 King street, West, Toronto 1, Ont.) Book, "Forming of Austenitic Chromium-Nickel Stainless Steels". Compiled to afford fabricators of metal equipment a better understanding of the unusual adaptability of stainless steels to all modern processes of forming. Presents detailed description of modern forming procedures applied to chromium-nickel stainless steels as practiced in the fabrication plants of the U. S. Specific examples of forming technique are supplemented by details of tool design and tool materials, information on lubricants, data on dimensions, and a listing of consecutive steps in fabrication. Price $4.00.

Technical Assn. of the Pulp and Paper Industry, 122 East 42nd street, New York 17, N. Y. Book, "Pigments for Paper Coating", Tappi Monograph Series, No. 7. Authors: V. A. Belcher, R. T. Bingham, R. F. Blount, A. M. Brooks, Gerald Haywood, S. C. Lyons, C. J. O'Neil, Edwin Sutermeister, W. R. Willets. **Makes conveniently available** information that is being brought together for the first time in the coating monographs. Contents include: Barium Sulphate Pigments, Calcium Carbonate, Calcium Sulphite, Paper Coating Clays, Diatomaceous Silica, Luminescent Pigments, Satin White, Talc in Coated Paper, Titanium Pigments, Zinc Sulphide and Zinc Oxide Pigments.

Newsprint Assn. of Canada, Room 2280 Sun Life Bldg., Montreal 2, Que. Booklet, "Newsprint Data: 1948", a sequel to "Newsprint Data: 1947". Contains in more detail the results of a new survey of North American and world statistics conducted by the Association during the Spring and Summer of 1948 with the assistance of governmental and other sources. Actual results for 1947 are shown, and forecasts for 1948 and 1949 are adjusted in accordance with latest available information. Study is divided into three main parts: Canadian Capacity and Production; U. S. Supply and Demand; World Capacity, Demand and Supply.

Hydraulic Institute, 90 West street, New York 6, N. Y. Book, "Standards of Hydraulic Institute". Submits material which is considered good engineering practice in the pump industry. The Institute believes that these "Standards" will be of mutual advantage to purchasers and users of pump, the engineering profession, and pump manufacturers, and it is hoped that these recommendations will be considered as standard trade definitions and customs in the pump industry where nothing to the contrary has been established.

Supt. of Documents, U. S. Government Printing Office, Washington 25, D. C. Circular 460, "Publications of the National Bureau of Standards", price 75 cents. Lists all Bureau of Standards publications from 1901 to June 30, 1947. Includes Mathematical Tables, Building Materials and Structures Reports, Circulars, Handbooks, Commercial Standards, Simplified Practice Recommendations, Research Papers, and Miscellaneous Publications. Brief abstracts for the publications issued from January 1, 1942, to June 30, 1947, also are included.

Brown Instrument Co., Wayne & Roberts avenues, Philadelphia 44, Pa. Catalog #15-12, "pH and Conductivity". Offers a discussion of the fundamentals of pH, oxidation-reduction potential and conductivity, and describes various instruments such as the ElectroniK Potentiometer, Flow Electrode Assembly, Beckman pH Amplifier, etc. Features the application of pH and conductivity control to heavy chemical industries, pulp and paper, etc. Fully schematic drawings.

Albert Ramond & Associates, Inc., 405 Lexington avenue, New York 17, N. Y. Booklet, "Production Management". Reviews some of the major current questions relating to production, wages, costs, quality and labor relations. Presents answers which the actual experience of this engineering service have proven to be effective, workable and lasting.

Trends

Office of the PAPER TRADE JOURNAL,
Wednesday, December 1, 1948.

Sweden's Shipments

"Shipments of Swedish cellulose to the U. S. this year are expected to total little more than 300,000 tons, which would mean a decline of about 40 percent as compared with 1947, the Stockholm business weekly *Finanstidningen* writes", quotes the Business News Letter From Sweden. "Pulp shipments are the most important source of Sweden's dollar revenue." Actual shipments for 1948's first in ten months are reported by AP&PA at 350,557 short tons, compared with 555,215 for the year 1947, and with 445,124 for the year 1946. October pulp imports from Sweden, according to Bureau of Census figures, totaled 16,228 short tons.

Marshall Aid to Sweden

Discussing the Marshall Plan in a radio talk on November, Swedish Minister of Finance, Ernst Wigforss stated that "Inter-European trade is being hampered by the fact that one country does not want to accept another country's currency, the reason being that this currency cannot, as before the war, be converted into other currencies and thus be used for purchases on the world market. The result has been that the European countries try to export to each other only what they can cover by imports. Such an attitude naturally slows down the exchange of goods and thus also production. It is this state of affairs that the Marshall aid and the payments system it introduces want to remedy. The American aid will contribute towards speeding up trade among the European countries. This will result in increased production, and the European economy will more quickly be restored on a sound basis."

"Combination Deals"

So-called *combination deals* between the U. S. and Sweden will now be permitted under the aid plan, reports the Business News Letter. "This decision has been greeted with great satisfaction in Sweden, since it is expected to stimulate Sweden's export to the U. S. of a number of products and widen the scope of dollar-paid imports. In brief, this is the way the system works: a Swedish exporter of certain goods and articles to the U. S. may import certain other American products, valued at the same amount. Swedish firms, in other words, will be permitted for import purposes to dispose of the dollar revenues their export business has brought in. The combination deals, however, are limited to certain articles. *Such Swedish export staples ar cellulose, paper and iron ore are excluded.* The import from America is limited to essential raw materials and products, such as iron and steel and other metals, certain chemicals, electric materials, etc.

Indexes

Index of general business activity for the week ended November 20 inclined to 156.8 from 153.3 in the preceding week, compared with 152.9 for the corresponding week of 1947.

Index of paper board production rose to 198.0 from 187.0 in the preceding week, compared with 185.2 in the corresponding week of 1947.

Comparative ratios of U. S. paper and paperboard production to mill capacity, as reported by AP&PA are:

	Nov. 20 1948	Nov. 13 1948	Nov. 22 1947	Nov. 23 1946	Nov. 24 1945
Paper**	*100.8	‡99.6	111.9	106.6	91.4
Paperboard	97.0	96.0	102.0	100.0	91.0

** Indicates 1948 volume of 181,561 tons. Comparable week 1947, 177,342 tons. ‡ Revised.

Paperboard Production (Tons)

	Nov. 20 1948	Nov. 13 1948	Nov. 22 1947
Production	195,552	190,406	182,964
New Orders	174,440	167,198	165,882
Unfilled Orders	373,804	394,769	418,582

Percent of Activity, Current 97%; Year, 96%

Market Aspects

The lull in the nation's buying which is providing economists and statisticians with ample opportunity to theorize on cause and effect has not appreciably disturbed paper and paperboard men. Among the trade, it is generally felt that the interim of adjustment to peacetime levels is being spelled out in curtailed demand against adequate inventories and a universal tendency to wait for lowered prices before further buying. Overall production is reported at high volume, though diminished levels likewise are recorded in such fields as writing papers—now suffering extended dullness — book, and specialized lines.

Declines in retail and department store sales, reported as nation-wide by the Federal Reserve Board, are widely interpreted as a return to normal buying years when customers were not forced to early buying by scarce supply, to limited buying power enforced by high prices, and to delayed buying in the hope of getting lowered prices.

These same factors are reported in all avenues of buying and selling in paper and board. Particularly is it true that lowered prices of pulp, cotton, waste papers and other raw materials are being anticipated, and that little buying beyond immediate needs is being done. Domestic wood pulp, in ample supply of most grades, increased production and heavy inventories, also has been forced onto a buyers' market with competitive prices. Early adjustments reported elsewhere in this issue are expected to be followed with spot offers to move inventories before the year's close, also with further price adjustments for 1949's first quarter.

No general price collapse is believed to be impending in view of several factors which are supporting the nation's economy, said Mr. Ewan Clague, Commissioner of the U. S. Labor's Department, Bureau of Labor Statistics, speaking before the Eastern Association of College and University Business Officers in Washington. "We have, through the Marshall Plan, continued our exports. Second, our military appropriations, while reduced far below war levels, are likely to continue at a high level. Third, we have enacted legislation supporting many farm prices at levels generally not far below where those prices are now. Further, domestic industrial demand is still being maintained at high level. Finally, there is now a high level of consumer spending based on high employment, high wages and liquid savings," Mr. Clague concluded.

Newsprint

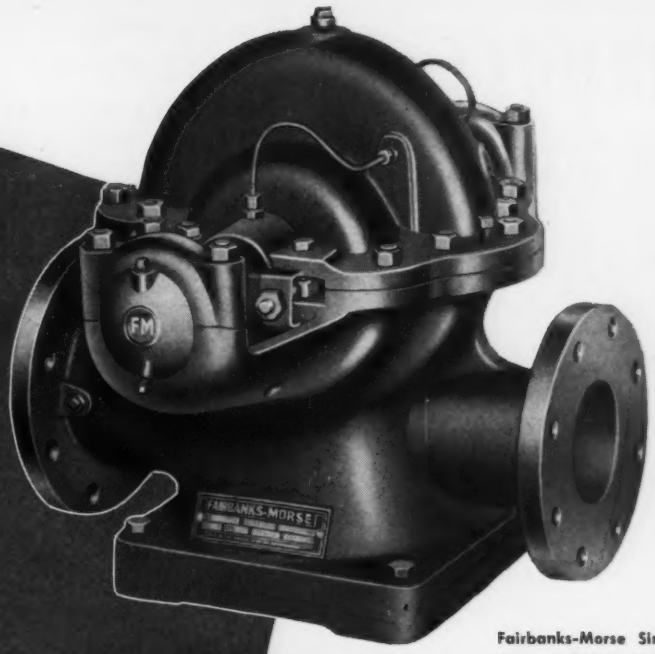
North American production during October 1948 exceeded that of any month on record, with total Continental production of 508,605 tons, compared with 502,874 during October 1947. Canadian mills showed an increase of 104,056 tons or 2.8 percent for the first ten months of the year, U. S. a decrease of 1.1 percent or 7,554 tons, Newfoundland a decrease of 0.3 percent or 974 tons. Total Continental increase was 95,528 tons, 2.0 percent more than in the first ten months of 1947, also greater than in any preceding similar period. Stocks of newsprint at the end of October were reported by the NSB at 83,843 tons at Canadian mills, 7,729 tons at U. S. mills, and 56,408 at Newfoundland's, a combined total of 147,980 tons.

Results of a survey of ANPA members presented to Canadian newsprint manufacturers at a conference in Milwaukee in September have just been released by ANPA. They indicated that U. S. publishers are ready to make contracts for at least five years for nearly an additional half million tons of newsprint.

It is estimated by the Newsprint Association of Canada that 1948 production will total 4,575,000 tons, an increase over the 1947 record of 128,000 tons — this despite the serious loss of production early in the year and the threat of further loss caused by lack of rainfall during recent months.

In the years since wartime restrictions were removed (1946-49), Canadian newsprint capacity will have increased by 321,000 tons or an average of 107,000 tons per year. These increases have not come from new mill constructions, the Association reports in "Newsprint Data, 1948," and only in small part from new machine installation. "They have resulted from substantial expenditures on existing machines to increase speed of operation and from improvement in trim achieved with the cooperation of customers. There is believed to be considerable room for further expansion of production from these methods."

Why use two stages when ONE will do?



Fairbanks-Morse Single-Stage, Split Case Centrifugal Pump—for dependable, high-head service.

When your job demands a multi-stage pump, the Fairbanks-Morse pump expert will recommend the right one from among the broad line built by *his* company . . .

But—frequently he can help you save the cost of a more expensive unit by recommending one of these single-stage, split-case pumps . . . whose performance, where heads reach toward 300 feet and capacities range to 72,000 g.p.h., is often equal to that of more costly multi-stage pumps.

Without prejudice, he can find for you the pump that suits your needs best; for in the Fairbanks-Morse line, he has all types, all sizes.

When it comes to pumps...

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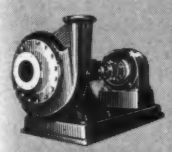
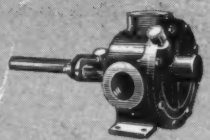
A name worth remembering

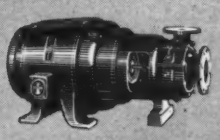
DIESEL LOCOMOTIVES • DIESEL ENGINES • STOKERS • SCALES
MOTORS • GENERATORS • PUMPS • RAILROAD MOTOR CARS and STANDPIPES • FARM EQUIPMENT • MAGNETOS

A FEW OF THE COMPLETE LINE OF FAIRBANKS-MORSE PUMPS


Trash Pumps

Side-Suction


Rotary


Builtogether

Imports

Week Ending Nov. 27

NEW YORK

Newsprint

Montmorency Paper Co., Storfjeld, Botwood, 4356 rolls.

N. Y. Journal American, Markland, Liverpool, N.S., 608 rolls.

N. Y. Herald Tribune, Markland, Liverpool, N.S., 1737 rolls.

N. Y. World Telegram, Markland, Liverpool, N.S., 434 rolls.

Brooklyn Eagle, Markland, Liverpool, N.S., 692 rolls.

Washington Post, (Alexandria, Va.), Markland, Liverpool, N.S., 2830 rolls.

Alexandria Gazette, (Alexandria, Va.), Markland, Liverpool, N. S., 31 rolls.

Sun, Arlington, (Alexandria, Va.), Markland, Liverpool, N.S., 18 rolls.

Washington Daily News, (Alexandria, Va.), Markland, Liverpool, N.S., 328 rolls.

R. A. Olsen, A.C.D., Donnacona, 381 rolls.

Printing Paper

(———), Oregon, Havre, 58 cs.

N. Y. Post Corp., Vibeke Maersk, Rouen, 709 rolls.

Drawing Paper

H. Reeve Angel & Co., Inc., Hillcrest Park, London, 1 cs.

Filter Paper

H. Reeve Angel & Co., Inc., Hillcrest Park, London, 15 cs.

Photo Paper

Lep Transport, Hillcrest Park, London, 50 drums (base).

Miscellaneous Paper

Lansen Naeve Corp., Washington, Havre, 12 cs.

Stevens Nelson Paper Corp., Oregon, Havre, 1 cs.

Rags, Baggings, Etc.

National City Bank, Khedive Ismail, Alexandria, 243 bls. bagging.

Chase National Bank, Khedive Ismail, Alexandria, 72 bls. old rags.

Chemical Bank Trust Co., Khedive Ismail, Alexandria, 80 bls. old bagging.

H. Adlerstein, Khedive Ismail, Genoa, 41 bls. old jute rags.

A. de Vries Trading Corp., Ames Victory, Antwerp, 115 bls. scrap bagging.

Bankers Trust Co., Vibeke Maersk, Antwerp, 64 bls. old jute rags.

Midwest Waste Material Co., Vibeke Maersk, Antwerp, 91 bls. scrap bagging, 164 bls. jute waste.

E. J. Keller Co., Inc., Vibeke Maersk, Antwerp, 35 bls. bagging.

A. de Vries Trading Corp., Vibeke Maersk, Rouen, 57 bls. rags.

Casein

(———), Rio Tercero, Buenos Aires, 1000 bags.

Hidecuttings

J. Gorvers, Cape Cumberland, Barranquilla, 258 bls.

Woodpulp

Price & Pierce, Ltd., Markland, Liverpool, N.S., 2825 bls. unbleached sulphite pulp.

NEWARK

Cellulose Sales Co., Bernhard Ingelsson, Stugsund, 375 bls. dry sulphite pulp.

Cellulose Sales Co., Bernhard Ingelsson, Ostrand, 1500 bls. kraft sulphate pulp, 1435 bls. wet kraft sulphate pulp, 1230 bls. dry sulphite pulp, 600 bls. sulphite pulp.

BOSTON

International Purchasing Co., Ames Victory, Antwerp, 44 bls. old manila rope.

PHILADELPHIA

Elof Hansson, Inc., Exmouth, Trieste, 1360 bls. bleached sulphite pulp.

Chemical Bank Trust Co., Exmouth, Venice, 64 bls. old light cottons, 76 bls. old light & strong cottons.

ALBANY

Pagel Horton & Co., Inc., Bernhard Ingelsson, Gefle, 10,000 bls. dry sulphite pulp, 6124 bls. woodpulp.

Pagel Horton & Co., Inc., Bernhard Ingelsson, Husum, 2743 bls. dry bleached sulphate pulp, 6096 bls. dry unbleached sulphate pulp.

Cellulose Sales Co., Bernhard Ingelsson, Stugsund, 890 bls. dry sulphate pulp, 500 bls. dry sulphite pulp.

Cellulose Sales Co., Bernhard Ingelsson, Munksund, 2250 bls. kraft sulphate pulp.

Cellulose Sales Co., Bernhard Ingelsson, Ostrand, 1380 bls. kraft sulphate pulp, 306 bls. dry sulphite pulp.

Al Church to Speak

NEW YORK — Al Church of *Time, Life* and *Fortune* magazines will address the meeting of the Eastern Division of the Salesmen's Ass'n. of the Paper Industry at Midston House at 12:15 noon, December 13.

U. S. IMPORTS FOR WOODPULP

Preliminary Figures, Oct. 1948

	Country of Origin	Short Tons
Mechanically Ground		
Unbleached	Canada	15,922
	Newfoundland	847
	Finland	698
		17,467
Screenings	Canada	317
Bleached	No Transactions	
Chemical		
Sulphite, Unbleached	Canada	33,231
	Newfoundland	1,018
	Sweden	5,982
	Finland	5,133
		45,364
Screenings	Canada	500
Sulphite, Bleached — Rayon and Special Chemical Grades	Canada	17,273
Other	Canada	19,200
	Sweden	1,756
	Norway	1,029
	Finland	3,119
		25,104
Sulphate, Unbleached (Kraft)	Canada	13,860
	Sweden	4,765
	Finland	2,411
		21,036
Sulphate, Bleached	Canada	15,807
	Sweden	3,725
Soda, Bleached and Unbleached	Canada	2,184
Totals:	Canada	118,294
	Sweden	16,228
	Finland	11,361
	Newfoundland	2,894
		148,777

Export Revisions

NEW YORK — A copyrighted news summary released by the American Paper & Pulp Ass'n. on November 23 stated that effective November 16, the following paper commodities, which are not included in the Positive List, are added to the list of commodities which may be exported under the General License Provisions: Toilet papers (Export Schedule B. No. 472800); other container board, and boxboards, folding and set-up (Schedule B, No. 473100), *except* V and M jute container board meeting military specifications, and tube stocks for ammunition and shell containers; bristols and bristol board (Schedule B, No. 473-200); sheathing and building paper (Schedule B, No. 473500); other paper products (Schedule B, Nos. 473500-479900), *except* the following—masonite insulating board (Schedule B, Nos. 473600 and 473800), filter paper (No. 474100) and heavy fiber shipping containers of corrugated or solid container board (No. 478100). Envelopes (Schedule B, No. 479300) are now also under General License.

Brazil Reports Success

WASHINGTON—The Brazilian plant launched in October a year ago in Sao Paulo for the manufacture of cellulose and paper-backed adhesive tape has had a successful year, recent official reports to this country indicate.

The rolls are being produced in sizes and widths similar to the United States product, it is said, with an output of all kinds about 20,000 square meters per month.

The plant reports its markets are increasing, and while present production is absorbed in Brazil, an investigation is being made of export possibilities to other Latin American countries.

Canadian Carloadings

OTTAWA—Car loadings on the Canadian railways of woodpulp and paper from the first week of 1948 until the week ending November 13 reached a cumulative total of 195,763 cars compared with 189,751 cars in the similar period last year ending week of November 15, 1947, according to the latest nation-wide survey by the Canadian Government, with the Eastern Division accounting for 169,447 cars of woodpulp and paper in this period of 1948 as against 164,884 cars last year and the Western Division for 26,316 cars compared with 24,867 cars last year.

Canada Inventory Drop

OTTAWA — The Canadian Government reports that its latest survey indicates estimated value of inventories in the pulp and paper mills of Canada continued to decline during the past five months of such official reports, reaching 124.8 in August as against 128.5 in July, 133.5 June, 135.4 May, and 142.3 April, with January, February and March standing at 139.8, 143.9 and 146.3 respectively, on the base of December 1946, being equal to 100.

Prices

Quotations indicate trends in an open market. At the moment they can be of little more value. While some volume business still is done under contract at the figures shown, fluctuations are too varied and frequent to permit prices to be interpreted as representing a wholly stabilized market.

NEW YORK

Paper

(Delivered New York)

Standard News, per ton—	
Rolls, contract	$100.00/ —
Sheets	115.00/ —
Kraft—per cwt.—Carload Quantities Zone A	
Deld. 40 lb. base wgt.	
Superstandard Wrapping	$9.00 —
No. 1 Wrapping	7.75/ 8.00
Standard Wrapping Rolls	7.00/ —
Standard Wrapping Sheets	7.50/ —
Standard Bag	6.50 —
Tissues—Per Ream 24x36 (480) 10/11 lbs. Zone 1.	
Wh. No. 1 Frd.	$1.84/$2.00
Wh. No. 1 M. G.	1.94/ 2.00
Wh. No. 1½	1.65/ —
Wh. No. 2	1.50/ 1.70
Kraft Anti-Tar	1.65/ —
Kraft Unbl.	1.85/ —
Shred. Wh. No. 1 per lb.	.12¾/ .18
Toilet—Per Case of 100 rolls—1 M Sheets.	
Unbleached	$7.50/$10.00
Bleached	8.75/ 10.00
Paper Towels—Per Case of 3750—Zone 1.	
Wh. Jr. M'tif'd 9¼x9½	$5.45
Br. Sr. M'tif'd 10x12	3.80
Br. Jr. M'tif'd 9½x9¾	3.30
Br. Jr. Sgl. fold 10x10¾	3.35
Manila—per cwt.—C-1 f.a.	
No. 1 Jute Tag	$14.50/ —
Reg. Jute Manila	13.25/$15.50
No. 1 Manila Wrapping	8.75/ 10.50
5 lb. Manila	10.75/ 11.25
Boards, per ton—	
Filled News	94.00/
Plain Chip	85.00/ 90.00
Blchd. Mla. L-d. Chip*	105.00/
White Pat. coated*	120.00/
Kraft Liners 42 lb.	105.00/
Kraft Corr. .009	110.00/
Binders Boards	120.00/126.00

*Base Prices per 10 tons. Less than 10 tons but over 3 tons, add $2.50; three tons or less, add $5; regular 35-39 basis, add $5; basis 40-49, add $2.50; basis 91-100, add $2.50; basis 101-120, add $5.

The following prices are representative of distributors' resale prices, all deliveries in Zone 1:

Rag Content Bonds and Ledgers—

White, 16 lbs.

Bonds, per cwt.

	Carton	4 C't'n	Ton
100% Rag Ext. No. 1	$59.00	$54.55	$52.30
100% Rag	52.25	48.30	46.30
75% Rag	41.50	38.30	36.70
50% Rag	33.75	30.70	29.50
25% Rag	30.25	27.45	26.35

Ledgers, per cwt.

100% Rag Ext. No. 1	$57.00	$52.65	$50.50
100% Rag	50.25	46.40	44.50
75% Rag	41.50	38.30	36.70
50% Rag	33.75	30.70	29.50
25% Rag	30.25	27.45	26.35

Sulphite Bonds and Ledgers—

White, 16 lbs.

Bonds, per cwt.

No. 1	$21.25	$19.25	$18.50
No. 2	20.25	18.30	17.55
No. 4	19.25	17.55	16.85

Ledgers, per cwt.

No. 1	$21.75	$19.65	$18.85
No. 2	20.75	18.75	18.05
No. 4	20.00	18.10	17.35

White Book, per cwt.—

Coated

	Case	Ton
No. 1 Glossy	$20.90	$20.15
No. 2 Glossy	19.65	18.90
No. 3 Glossy	18.90	18.25
Machine Coated	16.65 to 17.15	16.05 to 16.35
Uncoated		
No. 1 Antique (Watermarked)	16.40	15.80
Offset	15.15 to 17.15	14.60 to 16.40
A Grade E. F.	15.40	14.85
A Grade S. C.	15.90	15.35
B Grade E. F.	15.15	14.55
B Grade S. C.	15.65	14.95

Wood Pulp

Fourth Quarter

Domestic mill contract prices delivered with varying freight allowances.

	Per Short ADT
Groundwood	$80.00/ $81.00
Unbleached Sulphite	124.00/ —
Bleached Sulphite	125.00/ 135.00
Bleached Soda	130.00/ 135.00
Bleached Sulphate	136.00/ 155.00
Unbleached Sulphate Northern	120.00/ 130.00
Unbleached Sulphate Southern	110.00/ 115.00

Canadian Quotations

Prices delivered with varying freight allowances unless otherwise specified:

	Per Short ADT
Bleached Sulphate	$147.50/$150.00
Unbleached Sulphate	115.00/ 125.00
Unbleached Sulphite	125.00/ 126.00
Bleached Sulphite	125.00/ 135.00
Glassine Unbleached Sulphite (no freight allowance)	120.00/ —
Bleached Soda	130.00/ —
Groundwood	80.00/ 85.00
Sideruns Pulping News	80.00/ 90.00

Swedish Quotations

On dock, Atlantic Ports

Bleached Kraft	$165.00/ —
Bleached Sulphite	165.00/ —
Unbleached Sulphite	140.00/ 149.00
Unbleached Kraft	127.50/ —

Finnish Quotations

On dock, Atlantic Ports

	Per Short ADT
Bleached Sulphite	$165.00/ —
Unbleached Sulphite	140.00/ 143.00
Unbleached Sulphate	127.50/ —

Norwegian Quotations

On dock, Atlantic Ports

	Per Short ADT
Bleached Sulphite	$165.00/$175.00

New Domestic Cotton Cuttings

(Prices to Mill, F.o.b. Ship. Pt.)

White Shirt	$10.50/	$11.00
Unbleached Muslin	11.00/	11.50
Light Silesias	8.25/	8.50
White Back Blue Overalls	7.50/	8.00
Blue Overalls	7.25/	7.75
Fancy Shirt	5.76/	6.25
Percales	6.50/	7.00
Light Prints	6.75/	7.25
No. 1 Washables	4.50/	5.00
Bleachable Khaki	6.75/	7.25
Unbleachable Khaki	6.00/	6.50
Cottonades	4.75/	5.25
Lt. Flannelettes	8.00/	8.50
Men's Corduroy	4.75/	5.25
Women's Corduroy	4.50/	5.00

Old Domestic Cotton Rags

(Prices to Mill, F.o.b. Ship. Pt.)

	Per 100 lbs.	
No. 1 Whites, Repacked	$5.00/	$5.50
No. 1 Whites, Miscellaneous	4.00/	4.50
No. 2 Whites, Repacked	3.00/	3.50
No. 2 Whites, Miscellaneous	2.50/	2.75
Blue Overalls	3.50/	4.00
Thirds and Blues Repacked	2.75/	3.25
No. 1 Roofing Rags	1.40/	1.50
No. 2 Roofing Rags	1.25/	1.35
No. 3 Jute Bagging	1.15/	1.25
No. 4 Brussels & hrd. bck'd crpts.	1.25/	1.35
No. 5A Roofing Rags	1.25/	1.35

New Foreign Cotton Cuttings

(Prices to Mill, F.o.b. Dock, N. Y.)

	Per 100 lbs.	
New Dark Cuttings	$5.50/	$5.75
New Mixed Cuttings	6.25/	6.50
Light Silesias	9.25/	9.50
Light Flannelettes	9.25/	9.50
New White Cuttings	12.00/	13.00
New Unbleached Cuttings	12.25/	13.00
Fancy Shirt Cuttings	6.50/	7.00
Light Prints	7.75/	8.00
Bleachable Khaki, No. 1	7.00/	7.50
Unbl. Khaki, No. 1	6.25/	6.75

Old Foreign Rags

(Prices to Mill, F.o.b. Dock, N. Y.)

	Per 100 lbs.	
No. 1 White Cottons	— /	—
No. 2 White Cottons	— /	—
No. 3 White Cottons	— /	—
No. 4 White Cottons	3.50/	3.75
Extra Light Prints	6.50/	7.00
Old Light Prints	4.50/	5.00
Med. Light Prints	4.00/	4.50
Dutch Blue Cottons	5.25/	5.50
Checks and Blues	3.25/	3.50
Linsey Garments	2.15/	2.25
Dark Cottons, European	2.00/	2.10
Dark Cottons, Egyptian	1.90/	2.00
Old Shopperies	nominal	
New Shopperies	nominal	

Bagging

(Prices to Mill, f.o.b. N. Y.)

	Per 100 lbs.	
Foreign Gunny, No. 1	$8.00/	$8.50
Domestic Gunny, No. 1	7.50/	8.50
Heavy Wool Tares	7.50/	7.75
No. 1 Scrap Bagging	7.25/	7.50
Roofing Bagging	1.10/	1.20
Foreign Manila Rope	5.50/	5.75
Domestic Manila Rope	6.00/	6.25
Jute Strings	7.00/	7.25
No. 1 Sisal Strings	5.25/	5.50
Mixed Strings	1.50/	1.75

Waste Paper

Base Prices to Mills for Average Packings F.o.b. New York, Baled

	(Per Ton)	
No. 1 Hard White Envelope Cuts	100.00/	105.00
No. 1 Hd. Wh. Shavings, unruled	85.00/	90.00
Super Soft White Shavings	90.00/	95.00
No. 1 Soft White Shavings	65.00/	70.00
No. 1 Fly Leaf Shavings	45.00/	
No. 1 Gd'wd Fly Leaf Shavings	30.00/	35.00
No. 1 Heavy Books & Magazines	19.00/	21.00
Mixed Books	13.00/	15.00
No. 1 White Ledger	50.00/	60.00
Col. Ledger	40.00/	45.00
Manila Tab. Cards	60.00/	65.00
New Manila Envelope Cuttings	65.00/	75.00
Extra Manilas	20.00/	25.00
Mxd. Kraft, Bag Cuttings	55.00/	60.00
Kraft Envelope Cuttings	65.00/	75.00
Triple Sorted, No 1 Brown Soft Kraft	40.00/	45.00
New Kraft Corrugated Cuttings	35.00/	40.00
No. 1 Assorted Old Kraft	35.00/	40.00
Used Kraft Bags	35.00/	40.00
New Jute Corrugated Cuttings	18.00/	—
Old Corrugated	14.00/	15.00
No. 1 News	13.00/	14.00
No. 1 Mixed Papers	6.00/	7.00
Box Board Cuttings	7.00/	8.00
White Blank News	65.00/	70.00
Overissue News	17.00/	18.00
Sulphite Mill Wrappers	12.00/	14.00

Twines

All Prices Nominal, F.o.b. Mill

(Soft Fiber)	
Coarse Polished—India	.35½/ .36½
Fine Polished India	.41½/ .45
Unpolished—Paper Makers	.32¼/ .34½
Tube Rope	.33¼/ .35½
Wrapping	.36 / .38¾
Cotton	.58 / .60
Polished Cotton	.55 / —
(Hard Fiber)	
Mex. Sisal	.21 / .27
Manila (Reprocessed)	.31 / .35
(American Hemp)	
Polished Hemp	.46½/ .48
Unpolished	.35 / .37¾

PHILADELPHIA

Domestic Rags (new)

(F.o.b. Eastern Shipping Point)

White Shirt	.10½/ .11
Light Silesias	.07½/ .08
Black Silesias, soft	.05½/ .06
Unbleached Muslin	.10½/ .11¼
Washable Prints	.06½/ .07
Washable No. 1	.05 / .05½
Blue Overall	.07½/ .08
Washable Shredding	.02¾/ .03¼
Fancy Percales	.06¾/ .07¼
Unbleachable Khaki	.05½/ .06½
Bleachable Khaki	.06¼/ .06¾
Men's Corduroy	.05¼/ .06
Ladies' Corduroy	.05 / .05½
Cottonades	.05½/ .06

Domestic Rags (Old)

(F.o.b. Eastern Shipping Point)

White No. 1—Repacked	4.50 / 5.00
Mixed White	4.00 / 4.25
White No. 2—Repacked	3.50 / 3.75
Thirds and Blues—	
Miscellaneous	2.50 / 2.75
Repacked	3.00 / 3.25
Domestic No. 1 Roofing Stock	1.55 / 1.60
Domestic No. 2 Roofing Stock	1.45 / 1.50
Roofing Bagging	1.35 / 1.40
Old Manila Rope	— / 5.50

(Continued on page 54)

Prices

CONTINUED FROM PAGE 53

Bagging

(F.o.b. Eastern Shipping Point)

Foreign Gunny No. 1	nominal
Domestic Gunny No. 1	.07¼/ .07¾
Sisal Strings No. 1	.04½/ .05
Sisal Strings No. 2	.03½/ .04
Sisal Jute	.02¼/ .03
No. 1 Scrap	.06½/ .07
No. 2 Scrap	.03 / .03½

Waste Papers

F.o.b. Phila. Mill Prices, Baled

	Per Ton
No. 1 Hd. White Envelope Cuts	120.00/ 125.00
No. 1 Hd. Wh. Shavings, unruled	100.00/ —
Soft White Shavings	85.00/ —
White Blank News	65.00/ 75.00
No. 1 White Ledger	65.00/ —
No. 1 Heavy Books & Magazines	20.00/ 22.00
New Manila Envelope Cuttings	75.00/ —
No. 1 Assorted Old Kraft	35.00/ 40.00
No. 1 Mixed Paper	7.00/ 8.00
Box Board Cuttings	8.00/ 10.00
New Kraft Corrugated Cuttings	55.00/ 60.00
Old Corrugated	14.00/ 16.00
Overissue News	15.00/ 16.00
No. 1 News	11.00/ 13.00

BOSTON

Waste Papers

F.o.b. Boston, Mill Prices, Baled

	Per Ton
No. 1 Hd. Wh. Shav., unruled	$135.00/ —
No. 1 Hd. Wh. Shavings, ruled	90.00/ —
Soft White Shavings	120.00/ 125.00
No. 1 Fly Leaf Shavings	45.00/ —
No. 2 Fly Leaf Shavings	40.00/ 45.00
No. 1 Grdwd. Fly Leaf Shvgs.	nominal
No. 2 Groundwood Fly Leaf Shavings	nominal
Mixed Colored Shavings	30.00/ —
New Manila Env. Cuts, one cut	75.00/ —
Hard White Envelope Cuts, one cut	120.00/ —
Triple S'ted No. 1 Br. Soft Kraft	75.00/ 80.00
Mixed Kraft Env. & Bag Cuttings	45.00/ —
Kraft Envelope Cuttings	80.00/ 90.00
No. 1 Heavy Books & Magazines	22.00/ —
New Manila Env. Cutt'gs, one cut	47.00/ —
New Manila Envelope Cuttings	80.00/ 85.00
White Tabulating Cards	80.00/ 90.00
White Blank News	65.00/ —
No. 1 Assorted Old Kraft	50.00/ —
No. 1 Mixed Paper	8.00/ 9.00
Overissue News	11.00/ 12.00
No. 1 News	11.00/ 12.00
New Corrugated Cuttings, Kraft	55.00/ 60.00
Old Kraft Corrugated Containers	35.00/ —
Old Corrugated Containers	13.00/ 14.00
Paper Strings	40.00/ 45.00

Bagging

(F.o.b. Boston)

	(Per 100 lbs.)
Foreign Gunny	nominal
Domestic Gunny	8.25 / —
Domestic No. 1 Old Rope	6.00 / 6.50
Foreign No. 1 Old Rope	5.75 / 6.00
Mixed Strings	1.35 / —
Transmission Rope—	
Domestic	3.00 / —
Jute Carpet Threads	— / 4.00
Bleachery Burlap	— / 9.00
Scrap Burlap—	
Foreign	6.75 / 7.00
Domestic	7.00 / 7.25
South America	6.75 / 7.00
Austr. Wool Pouches	8.00 / —
New Zealand Wool Pouches	— / 5.50
New Burlap Cuttings	8.50 / —
Heavy Baling Bagging	8.00 / 8.50
Paper Mill Bagging	— / 6.00
No. 1 Roofing Bagging	— / 1.40

Domestic Rags (New)

(F.o.b. Boston)

	(Per 100 lbs.)
New Light Prints	nominal
Fancy Percales	7.00 / —
White No. 1 Shirt	11.00 / —
Light Flannelettes	8.00 / —
Canton Flannels, Bleached	10.00 / —
Underwear Cutters, Bleached	11.00 / —
Underwear Cutters, Unbleached	10.50 /12.00
Silesias No. 1	7.25 / —
Black Silesias	4.50 / —
Red Cotton Cuttings	4.50 / —
Blue Overalls	— / 8.00
Soft Unbleached	11.00 / —
Blue Cheviots	7.00 / —
Fancy	5.50 / —
Washable	6.00 / —
Khaki Cuttings	6.00 / —
Corduroy	4.00 / —
Men's Corduroy	4.50 / —
Khaki Canvas	— / 6.00
B. V. D. Cuttings	11.00 / —

Domestic Rags (Old)

(F.o.b. Boston)

	Per 100 lbs.
No. 1 Whites, Repacked	4.75 / 5.00
No. 1 Whites, Miscellaneous	4.25 / 4.75
No. 2 Whites, Repacked	2.50 / —
No. 2 Whites, Miscellaneous	2.00 / 2.50
Twos and Blues, Repacked	1.50 / 1.75
Old Blue Overalls	4.00 / 4.50
Thirds and Blues, Repacked	— / 1.50
Black Stockings	3.00 / 3.50
No. 1 Roofing Stock	1.55 / —
No. 2 Roofing Stock	1.45 / —
No. 3 Roofing Stock	1.25 / —
No. 4 Roofing Stock	1.25 / —
No. 5, Quality A.	1.35 / —
Old Manila Rope	6.00 / —

CHICAGO

Waste Paper

(F.o.b. Chicago) Mill Prices, Baled

Shavings—	
No. 1 Hard White Envelope cuts, one cut	$100.00/ —
No. 1 Hard White Shavings, unruled	90.00/ —
No. 1 Soft White Shavings	80.00/ —
No. 1 White Ledger	60.00/ —
No. 1 Heavy Books & Magazines	28.00/ 30.00
White Blank News	50.00/ —
Mixed Kraft Env. & Bag Cuttings	70.00/ —
No. 1 Assorted Old Kraft	25.00/ —
Overissue News	22.00/ —
No. 1 News	— / 18.00
No. 1 Mixed Paper	9.00/ —
Old Corrugated	14.00/ 15.00
Mill Wrappers	11.00/ —

Markets

Blanc Fixe

Supply good; demand steady. Pulp is currently quoted at $85.00 in bags, car lots at works, 6 cents per pound, l.c.l., deld.; by-product $75.00 per ton, car lots, at works, 6 cents per pound, l.c.l., deld.

Bleaching Powder

Prices firm. Demand strong. Supply adequate. Prices range from $4.25 to $4.75 per 100 pound drums, l.c.l. works.

Casein

Domestic prices firm. Manufacturers' holdings good. Demand light. Trading imported product dull. Current prices on processed acid precipitated casein at 28½ to 32 cents per pound for domestic grades and .26 to .28 cents for imported grades, f.o.b. shipping point.

Caustic Soda

Easier demand has improved supply of liquid types. Export shipments tied up by railroad embargoes and dock strike. Flaked and solid still tight. 1949 contracts being written at adjusted levels. Contract renewals reported at present price levels. Solid caustic is reported at $3.10/$3.20 per cwt.; flaked and ground is quoted at $3.50 per cwt. in 400 pound drums, $4 to $4.45 per cwt. in 100 pound drums—car lots at works; liquid 50 percent in tank cars at $2.50 per cwt.; liquid 73 percent in tank cars at $2.60 per cwt., at works.

China Clay

Demand steady. Supply excellent. Domestic filled clay is $9 to $11.50 per ton, car lots; coating clay is $14 to $22. Imported clay quotation, short tons, $16 to $35, export warehouse

Chlorine

Pickup in demand and railroad embargoes tighten supply. Shortage of tankcars and multi-unit containers hampers delivery. Currently quoted at $2.40 per cwt. in single unit tank cars at $2.70 to $3.90 per cwt., in multi-tank cars, f.o.b., works.

Rosin

Savannah and local markets quiet. Demand easier. Prices steady. Gum rosin in drums per 100 pounds net in car lots, f.o.b., Savannah; B, $6.50; G, H, I, K, $7.72. Wood rosin per 100 pounds net, car lots, f.o.b. Savannah; B, $5.00; FF, $6.50.

Rosin Size

Heavy demand. Supply good. Seventy percent gum and pale wood grades, tank cars, $6.30 to $6.40, f.o.b. southern shipping point.

Salt Cake

Supply somewhat easier. Heavy kraft production keeps demand steady. Production under contract. Domestic salt cake quoted at $27.00, f.o.b. shipping point, freight allowed to destination.

Soda Ash

Eased demand from other industries and increased production makes supply condition favorable; deliveries close to schedule. Current prices sustained in some 1949 contracts. Current prices, car lots per 100 pounds; in bulk, $1.15; in paper bags, $1.40; and in barrels, $1.90.

Sodium Bicarbonate

Production good. Demand eased by better supply of other alkalis. Reported as $1.95 per cwt. paper bags, carload lots.

Starch, Corn

Prices firm paralleling corn markets. Demand moderate. Supply ample. Pearl grade quoted at $5.41 per 100 pounds; powdered starch at $5.52 per 100 pounds; car lots, New York.

Starch, Potato

Demand fair. Prices stronger following rise. Supply ample. High grade quoted at $4.80/$5.00 cwt. f.o.b. Idaho; $5.10/$5.25 f.o.b. Aroostook; Pearl grade $5.00/$5.15 cwt. f.o.b. Aroostook.

Sulphate of Alumina

Demand increased. Supply steady. The commercial grades are quoted from $1.50 per 100 pounds, in bags, car lots, f.o.b. works. Iron free is $2.50 per 100 pounds in bags, car lots, at works.

Sulphur

Demand active. Supplies steady. Production up 3 percent. Annual contracts are quoted at $18 per long ton, f.o.b. mines; the price f.o.b. at Gulf ports is $22.00 per long ton.

Talc

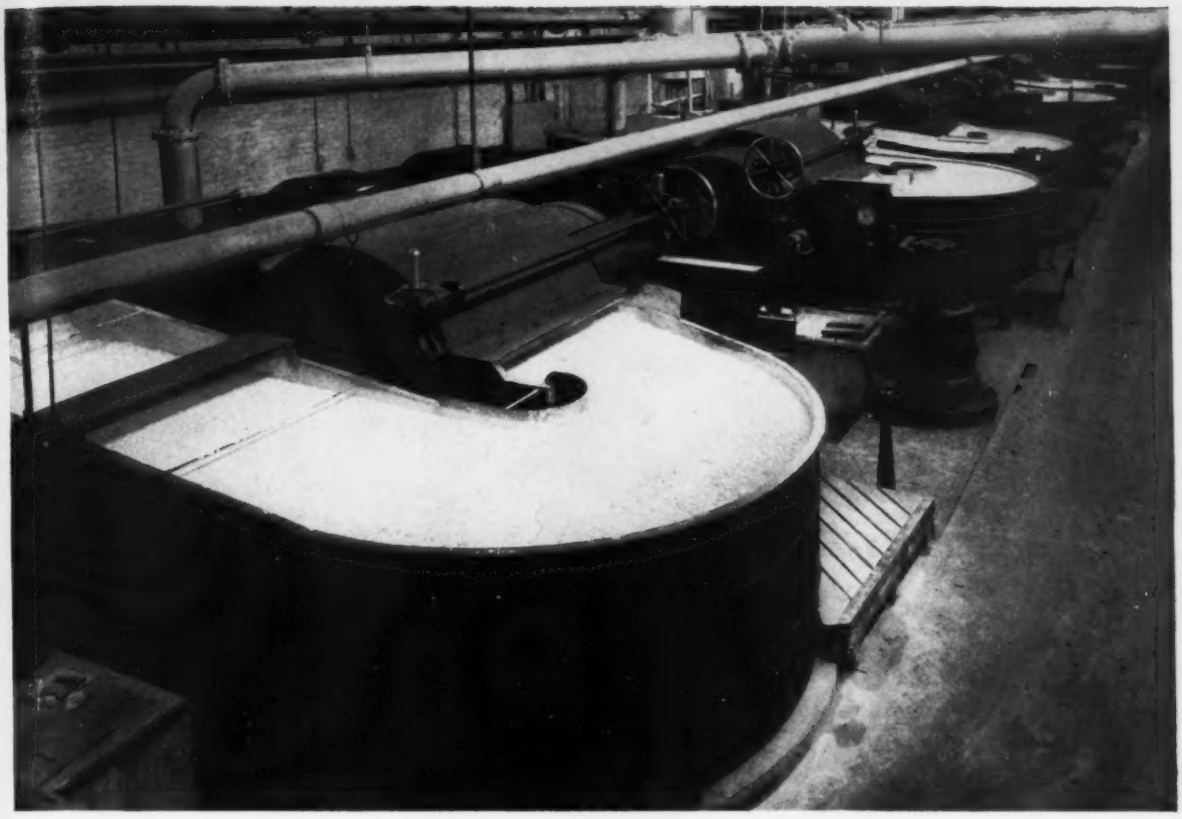
Demand continues in excess of supply. Improvement seen by early 1949. Prices steady. Domestic grades are currently quoted at $23 per ton in paper sacks, f.o.b. mills; Canadian at $35 and up per ton. All prices in car lots.

Tapioca Flour

High grades in good demand and only fair supply Steady improvement in buying noted. Superior highs range from $10.25/$11.50 cwt.; high grades $9.25 cwt., on dock Atlantic and Gulf ports; medium grades range from $6.00/$7.50 cwt., on dock N. Y. Coarse pearl grades $5.00/$5.50 cwt., on dock N. Y. Medium and low grades in adequate supply.

Titanium Dioxide

Supply of paper grades continues unequal to demand. Shipments on allocation. Improvement in supply delayed to 1951. Anastase 18c pound carload lots, 18½-19c l.c.cl., rutile, 20c pound carload lots, 20½-21c l.c.l.; 50-pound bags, f.o.b. plant, minimum freight allowance.



3 to 5 times THE WORK WITH MIDWEST AUTOMATICS

Except for superficial appearance these six Midwest automatics are as different from ordinary beaters as day is from night.

These six beaters are doing from 3 to 5 times the work of which ordinary beaters are capable—processing around 50 tons each. Five of them are ahead of five machines running a wide range of specialty papers, each beater serving its own particular machine. The sixth is a spare.

Each succeeding furnish, for a given grade, is an exact duplicate of all previous furnishes for that grade. Any earlier furnish required for some other grade may be duplicated exactly. That is all controlled automatically, a feature not found on ordinary equipment.

The power saving is truly tremendous. In a conventional beater most of the power is used to circulate the stock. In a Midwest automatic most of the power is used for work on the stock, relatively little for circulation.

Since one Midwest automatic will do the work of 3 to 5 ordinary beaters, the initial investment per ton of capacity is bound to be lower. As for maintenance, there has been virtually none on the beaters mentioned above and they've been operating several years. The saving in floor space is obvious.

Here is a beater capable of beating all the stock a 112" or 116" machine can use—a beater that would save you money—far more money than you may at the moment realize. Let us give you *all* the facts.

MIDWEST-FULTON
DRYER DRAINAGE SYSTEMS
MIDWEST PULPERS
STANDARD BEATERS
AGITATION EQUIPMENT
AUTO-FLEX DRYER SYPHONS
BALL
SIGHT-FLOW INDICATORS, ETC.

THE MIDWEST-FULTON MACHINE CO., Dayton 1, Ohio

Midwest-Fulton

Financial Record

Preferred Stocks	Per Share Calendar Year 1947	Earnings 12 Mos. to Approx. 9/30/48	Indic. Annual Divid. Rate	Dec. 1 Closing Market Price
Armstrong Cork Co. $3.75 Cum.	$38.64*	$43.53*i	$3.75	
Armstrong Cork Co. $4.00 Cum. Conv.	38.64*	43.53*i	4.00	108
Celotex Corp. 5% Cum.	24.25c	26.25g	1.00	
Champion Paper & Fibre $4.50 Cum.	65.90f		4.50	94
Container Corp. of Amer. 4% Cum.	102.74	98.49	4.00	
Crown Zellerbach $4.20 Cum.	56.40f	55.07g	4.20	95½
Crown Zellerbach $4.00 Cum. Conv. 2nd	211.39f	217.70g	4.00	
Dixie Cup Co. $2.50 Cum. Conv. Cla	9.16	9.61	2.50	
Flintkote Co. $4 Cum.	81.91	87.68	4.00	
Robert Gair Co., Inc. 6% Cum.	18.01	15.97	1.20	
International Paper Co. $4 Cum.	236.51	242.27	4.00	
Johns-Manville $3.50 Cum.	128.81	175.15	3.50	
Kimberly Clark Corp. 4½% Cum.	70.03	82.79	4.50	
Kimberly Clark Corp. 4% Cum. Conv. 2nd	95.88	114.55	4.00	
MacAndrews & Forbes 6% Cum.	62.20	59.89	6.00	
Mead Corp. 4¼% Cum.	81.56	80.43	4.25	82
Mead Corp. 4% Cum. Conv. 2nd	53.34	51.89	2.00	32⅞
Paraffine Cos. Inc. 4% Cum. Conv.	152.76a	158.96	4.00	
Rayonier Inc. $2 Cum.	13.58	16.09	2.00	32
St. Regis Paper Co. 4.40% 1st A	76.93	85.00	4.40	83
Scott Paper Co. $3.40 Cum.	43.95	54.31	3.40	
U. S. Gypsum Co. 7% Cum.	211.34	300.59	7.00	
United Wallpaper Inc. 4% Cum. Conv.	(d)1.35a	(d)6.28	2.00	
West Virginia Pulp & Paper 4½% Cum.	75.75c	78.49g	4.50	105½
Common Stocks				
APW Products Co.	$1.24	$1.32	$0.25	4⅜
American Writing Paper Corp.	1.61	0.02	0.25	5
Armstrong Cork Co.	6.41	7.17i	3.00	46¾
Celotex Corp.	6.59c	7.15g	2.00	25
Certain-Teed Prods. Corp.	3.75	3.99	0.90	13½
Champion Paper & Fibre	5.57f		2.00	24
Congoleum Nairn Co.	4.55	5.12i	2.25	30
Container Corp. of America	10.09	9.54	4.50	33½
Crown Zellerbach	6.81f	6.53g	2.00	25
Dixie Cup Co.	5.87	6.26	1.00	28
Flintkote Co.	6.27	6.28	3.00	28⅞
Robert Gair Co., Inc.	2.83	2.49	0.70	6⅝
Great Northern Paper Co.	4.56	4.55	2.80	
International Paper Co.	15.02	15.39	5.00	51½
Johns-Manville Corp.	3.17	4.28	2.00	38¼
Kimberly-Clark Corp.	4.29	5.16	1.65	21¼
MacAndrews & Forbes Co.	3.68	3.53	2.50	
Marathon Corp.	3.39c	3.93g	1.40	20¼
Mead Corp.	7.33	7.11	2.00	16⅜
National Container Corp.	4.13	2.86	1.20	9⅝
Paraffine Cos. Inc.	2.40a	2.50	1.20	21
Rayonier, Inc.	7.30	8.88	2.00	27¼
Ruberoid Co.	10.88	12.90	3.25e	
St. Regis Paper Co.	2.66	2.86	0.80	8½
Scott Paper Co.	3.02	3.79	2.50	
Sutherland Paper Co.	6.87	6.43	2.50	35⅜
Taggart Corp.	1.29		0.60	10⅝
Union Bag & Paper Corp.	7.93	8.13	3.00	31
United Board & Carton	4.95b	3.39h	1.25	8¼
U. S. Gypsum Co.	10.00	14.36	6.00	101½
United Wallpaper	(d)0.11a	(d)0.27	—	3⅛
West Virginia Pulp & Paper	11.40c	11.56g	4.00	

(a) Year ended 6/30/48
(b) Year ended 5/30/48
(c) Year ended 10/31/47
(d) Deficit
(e) Plus stock
(f) Year ended 4/30/48
(g) 12 months to approximately 7/31/48
(h) 12 months to 8/21/48
(i) 12 months to approximately 6/30/48
(*) Pro forma

Dividends Declared

Puget Sound Pulp & Timber Co., on November 23, declared the regular quarterly dividend of 50 cents a share on the new common stock, plus an extra dividend of 50 cents a share, making a total of $1 a share, payable December 28 to stockholders of record December 7, 1948. Including this declaration, dividends paid or payable in 1948 are the equivalent of $2.75 a share on the present common stock which resulted from a two-for-one split completed July 15.

Diamond Match Co., in a report for nine months ended September 30, showed net profit of $3,312,961, equal to $3.08 per share on the common stock. This profit was after a reserve of $800,000 for possible inventory price decline. The 1948 nine months' net compares with $2,706,520, or $2.37 a share in the same period a year ago. The inventory reserve as of September 30 amounted to $2,300,000.

Robert Gair Co., Inc., ordered a year-end extra of 30 cents and the regular quarterly dividend of ten cents on the common, both payable December 20 to stock of record December 3. This brings the 1948 total to 70 cents, compared to 35 cents last year, when dividends were placed on a quarterly basis in December. At that time, a year-end of 25 cents also was paid.

Fort Wayne Corrugated Paper Co., has declared a year-end dividend of $1.25 the share on its common stock outstanding at the close of business December 1, 1948, payable December 15, 1948. This year-end dividend together with dividend payments of 25 cents in each of the three previous quarters of the year brings total dividends on the stock to $2.00 per share for the year.

Hinde & Dauch Paper Co. on November 27 declared an extra dividend of $1, payable December 24, and and usual quarterly of 50 cents on the common, payable January 3, both to stockholders of record December 6. This brings total declarations for 1948 to $3, compared with $3.50 in 1947.

Great Lakes Paper Co., Ltd., has declared a dividend of 40 cents per share on its common stock and 62½ cents per share on its preferred stock, both payable on December 31, to shareholders of record on December 2.

British Columbia Forest Products, Ltd., has declared a dividend of 15 cents per share on its common stock, payable on February 1, 1949, ex-coupon January 29, 1949.

Jersey Paper Co., Ltd.—Six months to June 30: Net profit, $1,074,162 or $5.01 each on 198,292 common shares. For all of 1947, net profit was $1,556,493, or $7.03 a share.

Dividend Drop Reported

WASHINGTON — A drop of $200,000 in the amount of publicly reported cash dividend payments by the paper and printing industries combined, in October, has been reported by the Department of Commerce, comparing payments with the same month a year ago.

Payments this October totaled $9,700,000, against $9,900,000 a year earlier. However, payments for the quarter ending with October 1948, totaled $34,700,000 against $31,100,000 in the same three months of 1947.

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Paper Trade Journal

This is an official U. S. Treasury advertisement prepared under the auspices of the Treasury Department and the Advertising Council.

Obituary

George H. Harvey, 82, former director and production manager of the Gardner-Richardson Co., died on October 31, following hospitalization for pneumonia. Born in Wandsworth, England, he came to this country in 1871. Mr. Harvey started his career at 16 with the Platner & Porter Paper Co., then a branch of the American Writing Paper Co. In 1890, at the age of 24, he was offered the position of mill superintendent for the Rolland Paper Co. in St. Jerome, Canada. He refused that offer to accept a position as machine tender with the Fort Orange Paper Co. in Castleton, N. Y. While with the Fort Orange Co. he made the first of his many developments for the paper industry: that of calender staining. He had pioneered in the field of water-finishing postal card board and from this experimentation developed what is believed to be the first calender coloring process widely used today. In 1892 he left Fort Orange to become assistant superintendent of the E. B. Eddy Co. in Hull, Canada, where he remained until 1894, leaving to become superintendent of the Dexter, N. Y., plant of the St. Lawrence Paper Co. On Christmas Day, 1896, Mr. Harvey arrived in Middletown, Ohio, to take charge of the Tytus Mill of the Tytus-Gardner Paper & Mfg. Co. This was the beginning of his 52 years of association with the Gardner family. In 1900, Colin Gardner, Sr., E. T. Gardner, and Mr. Harvey formed the Colin Gardner Paper Co., now the Gardner-Richardson Co. Here he conceived and developed the principle of vertical dryers and the idea of carrying the sheet over the machine by the use of ropes. He was one of the early developers of patent coated paper and developed the white lined sheet. Early in his career he recognized the need for technical control in the paper industry and fathered the thought into an actuality. It was primarily his motivating force which caused the organization of TAPPI. Mr. Harvey is survived by his widow and only son, Arthur, who is director and chief engineer of the Gardner-Richardson Co.

John Ramsey Nolan, 79, co-inventor of the book match, died at his home in Larchmont, N. Y., on November 19. Mr. Nolan assisted Joshua Pusey, a Philadelphia attorney, in working on a new type of light which they called a "flexible match." It was Mr. Nolan's chemicals, cooked on the law office stove, which provided the heads and striking surfaces for what later became known as book matches. The rights to the invention were sold to the Diamond Match Co. in 1895, three years after they were patented. Mr. Nolan became patent attorney for the company in 1902, a position he retained until his death. Surviving are his widow, Mrs. Margaret Hilt Nolan; a sister, Mrs. Sarah C. Roberson; and a brother, Watson Nolan.

George F. Johnson, 91, board chairman of the Endicott-Johnson Corp., died at his home in Endicott, N. Y., on November 28, following a seven-week illness. Mr. Johnson, who was widely known for his progressive management policies in business, and for philanthropies and civic interests in Endicott and elsewhere, is survived by two sons, George W., president of the corporation, and Walter L., a leather manufacturer; two daughters, Mrs. M. W. Robertson and Mrs. Lloyd E. Sweet; and a brother, C. Fred Johnson.

Henry Irving Prankard, 67, vice-president of Herman Scott Chalfant, Inc., sales agent for paper manufacturers, New York City, died on November 21 in New York Hospital. He lived at 1226 Pelhamdale avenue, Pelham Manor, N. Y. Surviving are his widow, Mrs. Irene Dennison Prankard; a daughter, Mrs. John Y. Parson; and two brothers, Charles J. and George.

Charles Kafoure, 55, a salesman for the Capitol Paper Co., Indianapolis, Ind., and a part owner of the Northeastern Paper Co., died in that city on November 10, just three days after having given his daughter in marriage in a colorful Syrian Orthodox wedding ceremony. A native of Syria, Mr. Kafoure is survived by his widow, Mrs. Adeline Kafoure; three daughters, Mrs. Edward R. Frieje, Jr., Miss Agnes Kafoure and Mrs. Relma Abde; two sons, Edward and John; and a sister, Mrs. Sophia Jones.

John H. Coy, 76, former treasurer of the Imperial Wallpaper Co., Glens Falls, N. Y., from 1909 to 1929, and for the last six years in the offices of the Diamond Match Co., New York City, died at his home, 148-09 Northern boulevard, Flushing, Queens, on November 27. Surviving him are his widow, Mrs. Grace Coy, and a sister, Mrs. Frederick Sly.

Frederick A. Norris, 76, manufacturer of corrugated paper, who retired in 1928 as vice-president of the Thompson & Norris Co., of Brooklyn, N. Y., and in 1930 as president of the Emerson & Norris Co., of Boston, died on November 23 at his home in Cocoanut Grove, Fla.

Warren H. Bennett, sales promotion manager of the Arabol Mfg. Co., New York City, died at the U. S. Naval Hospital, St. Albans, on November 20, following a protracted illness. He was associated with Arabol for 29 years. Surviving Mr. Bennett are his widow and a brother.

Joseph T. Curtin, 54, for the past five years personnel manager of the Brightwater Paper Co., Adams, Mass., died of a heart attack on November 22.

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Errata

The item headlined "Dupont Quartet Upped," published on page 16 of the November 11 issue, should have been headlined "*Hercules* Quartet Upped." The four men named in the item are associated with the Hercules Powder Co., and not with the Du Pont organization.

The caption beneath the picture of Dr. Allan Philip Colburn, published on page 72 of the November 18 issue, incorrectly identified him as "Retiring Institute President." This caption should have read: Winner of the American Institute of Chemical Engineers Award which was established last year by the Celanese Corp. of America to give recognition to the efforts of the younger men in the chemical profession."

To those readers of *Paper Trade Journal* who brought these two inaccuracies to attention, your editor is most grateful. To all concerned in the two items, we extend sincere apologies.—*Ed. Note.*

NEW ARMSTRONG *Individual Dryer* TEMPERATURE CONTROL

Keeps Wet End Dryers "Cool"

Prevents Sheet from Sticking and Curling

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Maintains Any Temperature from 100° to 250° F

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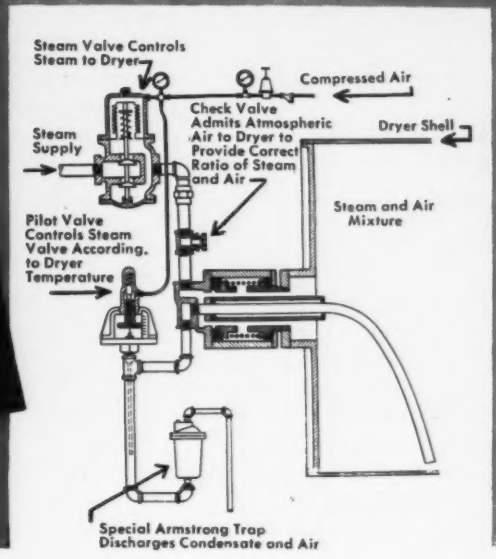
Steam Valve Controls Steam to Dryer
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Check Valve Admits Atmospheric Air to Dryer to Provide Correct Ratio of Steam and Air
Dryer Shell
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Steam and Air Mixture
Pilot Valve Controls Steam Valve According to Dryer Temperature
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Armstrong Individual Dryer Temperature Controls on the wet end of a paper machine make it possible to increase the sheet temperature as slowly as required for good drying. The temperature of the first dryer can be set at say 140° F, and that of the succeeding dryers at 160°, 180°, 200°, and 220° or whatever setting may be required for drying a particular sheet.

Thus, we have a positive, dependable answer to an old drying problem: maintenance of relatively cool wet-end dryers to prevent the sheet from sticking to the dryer surface, and to avoid curl or cockle due to over-drying on one side.

These controls are also used after the size press. Not only are the non-picking, non-curling advantages secured, but here fairly constant control of moisture content is also secured.

For complete information on this proved method of improving paper drying, write for BULLETIN 187.

Reduced Temperatures Secured by Controlled Mixture of Steam and Air

When steam and air are mixed at atmospheric pressure, the temperature of the mixture will be that corresponding to the partial pressure due to the steam. For example, if the partial pressure of the mixture due to steam is 3.7 lbs. absolute, the temperature will be 150° F. The Armstrong Control diagrammed above automatically controls the ratio of steam and air to maintain accurately the temperature for which it is set. If the temperature of the dryer tends to rise, the pilot valve bleeds compressed air to release pressure on the steam valve bellows, causing it to throttle. A decrease in temperature causes a reverse action. Atmospheric air for the mixture enters through the check valve when the condensing rate of the dryer causes pressure to drop below atmospheric. When temperatures above 212° F are desired, the check valve stays closed, no air enters and steam pressure is raised to the required point.

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Meetings

ASSOCIATION EXECUTIVES: Please send us your meeting dates and locations for this column as far in advance as possible. No charge for publication.

DECEMBER 2-3: Insurance Conference, American Management Ass'n., Hotel Drake, Chicago.

1949

JANUARY 13: American Society for Testing Materials, Philadelphia District, Franklin Institute.

JANUARY 20-21: Finance Conference, American Management Ass'n., Hotel Pennsylvania, New York.

FEBRUARY 3: American Society for Testing Materials, New York District, Engineering Society Building.

FEBRUARY 9: Southern Pulpwood Conservation Ass'n., Atlanta Biltmore Hotel, Atlanta, Ga.

FEBRUARY 10: American Society for Testing Materials, Philadelphia District, McAllister's, 1811 Spring Garden Street.

FEBRUARY 14-16: Personnel Conference, American Management Ass'n., Palmer House, Chicago.

FEBRUARY 20-25: Annual Convention, American Paper & Pulp Ass'n., Hotel Waldorf-Astoria, New York. For details, write to E. W. Tinker, Executive Secretary, 122 East Forty-Second Street, New York 17, N. Y.

FEBRUARY 22: SAPI Luncheon, Hotel Waldorf-Astoria. For details, write to E. G. Amos, Secretary-Treasurer, Salesmen's Ass'n. of the Paper Industry, 122 East Forty-Second Street, New York 17, N. Y.

FEBRUARY 28-MARCH 4: Spring Meeting and A.S.T.A. Committee Week, American Society for Testing Materials, Edgewater Beach Hotel, Chicago.

MARCH 17-18: Marketing Conference, American Management Ass'n., Hotel Pennsylvania, New York.

MARCH 22: American Society for Testing Materials, Philadelphia District. Franklin Institute.

APRIL 14-15: Production Conference, American Management Ass'n., Hotel Pennsylvania, New York.

MAY 10-12: Packaging Conference, American Management Ass'n., Auditorium, Atlantic City, N. J.

MAY 10-13: Eighteenth National Packaging Exposition, Public Auditorium, Atlantic City, N. J. For details, write to Mr. James O. Rice, Sec., 330 West 42nd St., New York, N. Y.

MAY 26-27: Insurance Conference, American Management Ass'n., Hotel New Yorker, New York.

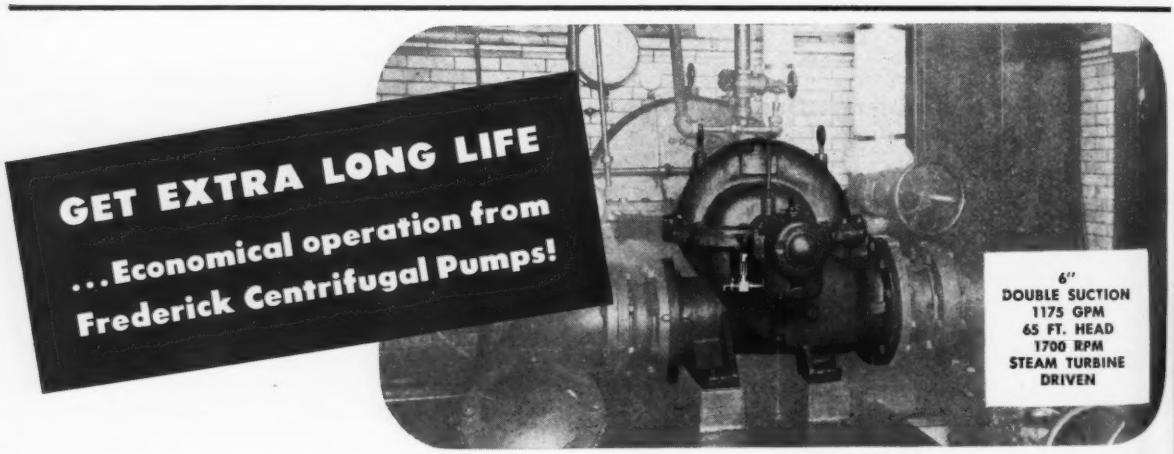
JUNE 8-9: General Management Conference, American Management Ass'n., Hotel Pennsylvania, New York.

JUNE 15-17: National Convention of the American Pulp and Paper Mill Superintendents Ass'n., Hotel Haddon Hall, Atlantic City, N. J.

JUNE 17-18: Paper and Twine Ass'n., French Lick Springs, Indiana. For details, write to Mr. John L. Richey, Sec.-Treas., Suite 651-653, Hotel Sinton, Cincinnati 2, Ohio.

JUNE 27-JULY 1: Annual Meeting, American Society for Testing Materials, Chalfonte-Haddon Hotel, Atlantic City, N. J.

OCTOBER 10-14: West Coast Meeting, American Society for Testing Materials. (First national meeting of ASTM on West Coast.) Fairmont Hotel, San Francisco, California.



Twenty-nine years ago, Frederick Iron & Steel manufactured its first centrifugal pump . . . a 6" Double Suction Volute type.

Delivered in July, 1919, this pump is still in operation today at the Dominion Coal Co. in Sydney, Nova Scotia. Minor repair parts over the 29-year period have been furnished promptly by Frederick. » » » » Today, Frederick Iron & Steel is manufacturing a complete line of single and double suction, single and multi-stage centrifugal pumps with the same long-lasting quality built into its first unit. When you buy Frederick pumps you're assured of continuous, economical operation from extra long life.

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We have among our designs just the centrifugal pump you're looking for. Drop a line to the address below and we'll gladly send you an attractive, illustrated "file-size" brochure on our pumps as well as the name of our factory representative nearest you. Ask for Bulletin 104.

National Reports Drop

National Container Corp. and its subsidiaries reports consolidated net sales for the nine months ended September 30, 1948, of $29,909,667.22 compared with $32,465,229.94 for the nine months ended September 30, 1947. Consolidated net profit for the nine months ended September 30, 1948, amounted to $5,124,469.16 which after provision for preferred dividends amounted to $1.89 per share on 2,706,849 common shares outstanding as at September 30, 1948, compared with $8,288,615.32 and $3.17 per share for the nine months ended September 30, 1947. Consolidated net profit for the third quarter of 1948 totalled $1,540,357.37 or $.57 per common share compared with $2,291,231.64 or $.87 per common share for the third quarter of 1947.

Collins Plan Offered

NORTH WILBRAHAM, Mass. — After nearly six months of operation under a receivership, the Collins Mfg. Co., papermaker, announced on November 19 that the plant was closing for an indefinite period, throwing 50 employes out of work.

Immediately afterward, E. H. Thomson, president of the Springfield Newspapers—through the Republican-Daily News Employes Beneficial Fund — made a new offer to lease and operate the paper plant. A similar offer made when the company went into receivership was refused. Trustees of the fund said they were renewing the offer so that company employes might have continuous employment.

Seek Dispute Mediation

HOLYOKE, Mass.— A member of the Massachusetts Board of Arbitration and Conciliation will be asked to enter the wage dispute now in effect between the American Tissue Mills and the Eagle Lodge of Papermakers, AFL, it was disclosed November 24 after the union held a meeting to vote on making such a request.

Workers in the Stony Brook and Pearl City Divisions of American Tissue are members of Eagle Lodge. They have received an eight-cent-an-hour increase so far this year, and, according to a clause in the contract permitting reopening of negotiations on wages, now seek another 10-cent-an-hour jump.

Base rate in the tissue mills here is said to be 95 cents an hour, compared to 99½ cents in other paper mills.

Award to Homer Calver

NEW YORK—Homer Calver, secretary of the public relations committee of the Cup & Container Institute was honored with an Award for Public Relations Achievement at the first annual meeting in this city of the Public Relations Society of America, Inc., in mid-November.

Miles to New Post

HOLYOKE, Mass.—E. Franklin (Bud) Miles has resigned as New York sales manager of the Crocker-McElwain Co., of this city to become New England representative of the Mississquoi Paper Co., of St. Albans, Vt., it was made known Nov. 26.

Mr. Miles has been with the Crocker-McElwain and Chemical Paper Co., mills for the past 29 years.

On October 1, 1929, after having been in the company offices for ten years, Mr. Miles was transferred to the New York sales office, and in 1935 was promoted to manager.

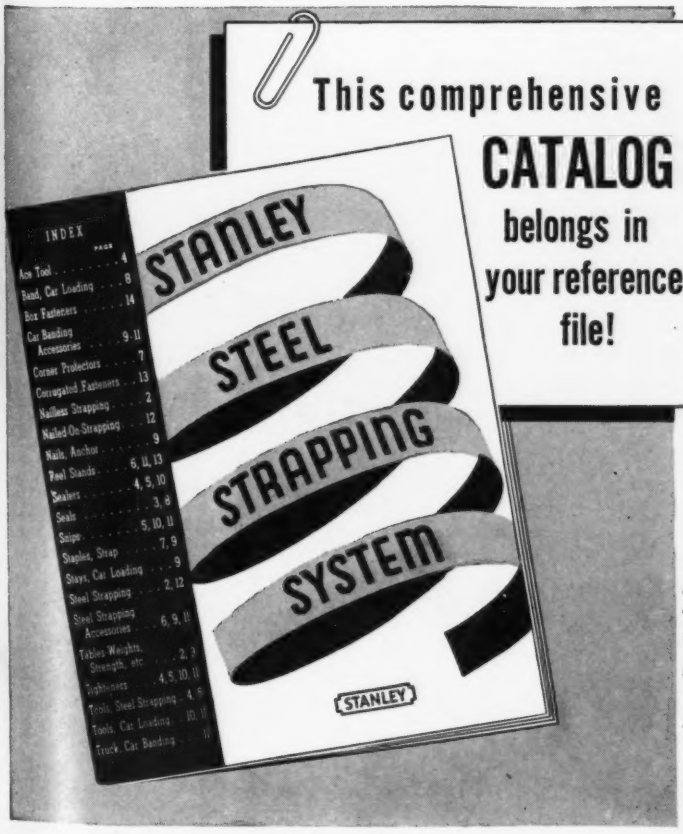
Mr. Miles is a past president of the Paper Salesmen's Ass'n., of the Paper Industry.

Berlin Program Progress

BERLIN, N. H.—A Brown Co. official states that full utilization of pulp wood resources in the Berlin region will be possible through a major expansion program now in progress.

Vice - President Wentworth Brown disclosed that a $9,500,000 program has been carried out during a three-year period.

The program gives the Brown Co. additional capacity for producing sulphate pulp and new machinery for making paper toweling.



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HYCAR latex added directly to the pulp in the beater or head box, or used as an impregnant for paper, imparts valuable properties not otherwise readily obtained.

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Thus, better physical properties may be obtained in high grade pulp. In other cases the use of lower grade stock may be permitted because of improved physical properties obtained by the use of Hycar latex. Paper is made adaptable to fields where it is not now used.

Present and potential applications for papers of this sort range from wallpaper to insoles, from gaskets to leather replacement material, from shelf liners to packaging papers.

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SECTION OF THE

TECHNICAL ASSOCIATION
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122 E. 42nd ST., NEW YORK 17, N. Y. Edited By R. G. MACDONALD, Secretary

Deinking Studies III*

Survey of a Production System by Screen Analysis

By H. P. Bailey[1], A. H. Nadelman[2] and E. F. Andrews[3]

Abstract

Screen analysis, made with a pulp classifier and supplemented by other pulp tests, was used to survey and evaluate a deinking system. The results showed that 77% of deinking and defibering was accomplished during initial disintegration and only 21% during subsequent cooking. Practically all of the fines in the system were either present at the start of deinking or introduced with the white water or may have resulted from the delignification of coarse fiber bundles. Mechanical action did not produce any significant portions of fines. Effluents diverted to the white water system for reuse were those richest in medium and fine portions of fibers and lowest in ash content. The waste effluent had the lowest medium and fine portions of fibers and the largest ash content.

This is the third in a series of studies made on a commercial deinking system toward improved operations. The first publication, entitled "Washing of Deinked Stocks—Results of Sodium Hexametaphosphate Treatment" *(1)*, dealt with the use of the chemical to prevent the formation of scale on washing equipment. The second, entitled "Alkali and Heat Recovery in Deinking Systems" *(2)*, pointed out the economies to be realized by the recovery and reuse of waste liquor. This article, the third covers the use of screen analysis as a means of evaluating a commercial deinking system.

The objective of the investigation was to gain information on the effect of the various steps of operation, the performance of the equipment used, the source of fines in the stock, and recovery of fiber from the effluents.

It was recognized that a new tool or a new application of an existing tool would be needed to give a complete picture of performance. Because of the wide range of fragment sizes to be found in the deinking system, a pulp classifier was used to separate the stock into portions of various sizes. The work of Cowles *(3)* on classifying deinked stock encouraged this decision.

Laboratory Equipment and Methods Used

Classifier

The pulp classifier used consists of a series of interchangeable rectangular screens of different meshes stacked vertically upon and clamped to a base. A pulsating diaphragm in the base keeps the stock agitated on the screens. In operation the screens are flooded with water. A measured quantity of stock diluted to approximately 0.015% consistency flows into the top of the screen stack and settles onto and through the screens. The quantity of stock retained on each screen is weighed moisture-free and computed as a percentage of the original stock. The stock passing through the finest screen is measured by difference.

For this investigation, a screen series was selected experimentally to give good distribution of fractions in all phases of the deinking system. The screens used were 4, 10, 14, 20, 35, 42, 65, 100, 170, and 250-mesh.

Sampling

Composite samples of stock, taken over an adequate period of time and representative of the stock at that point and time, were obtained as the stock entered and left each phase of the deinking system. It was not feasible to follow a single batch of stock through the system due to operating conditions. Therefore, the results obtained from each step of operation have to be evaluated individually.

Classification

Classification tests were run in triplicate on each sample taken. The fractions were computed individually and then combined into the following four portions:

1. Coarse—those fractions retained on the 4, 10, 14 and 20-mesh screens.
2. Medium—those fractions retained on the 35, 42, 65 and 100-mesh screens.
3. Fine—those fractions retained on the 170 and 250-mesh screens.
4. Very Fine—the fraction passing through the 250-mesh screen.

* Presented at the Annual Meeting of the Technical Association of the Pulp and Paper Industry, Hotel Commodore, New York, N. Y., Feb. 23-26, 1948.

[1] Member TAPPI; Manager, International Paper Co., Niagara Falls, N. Y.
[2] Member TAPPI; Chairman, Western New York Group, TAPPI; Technical Superintendent, International Paper Co., Niagara Falls, N. Y.
[3] Member TAPPI; Chemist, International Paper Co., Niagara Falls, N. Y.

Other Tests

To supplement the information obtained by classification and to insure that the samples tested were truly representative of the stock normally passing through the system, consistency, ash, freeness, brightness, pH, appearance by visual inspection, microscopy, and fiber length index *(4)* were determined. Only those results which were considered significant, are included in this report.

Production System

The deinking system, similar to one of those described by O'Donoghue *(5)*, consists essentially of the following steps: 1. initial disintegration in an alkaline condition, 2. cooking, 3. brown stock washing, 4. bleaching, 5. screening, and 6. bleached stock washing and thickening. Of these steps, cooking and bleaching are batch operations; the others are continuous. Wherever possible, white water is used for dilution and makeup.

The flowsheet in Fig. 1 shows the sequence of operations in more detail.

The Survey

Initial Disintegration

Initial disintegration takes place in an impeller type centrifugal pulper. Waste paper, alkali, and heated white water are fed into the pulper.

Table I shows the stock composition before and after pulping.

A visual inspection of the fractions from the stock after pulping revealed that the portion passing through the 20-mesh screen was completely defibered and deinked.

The fractions retained on the 4, 10, 14 and 20-mesh screens all required further treatment. Expressed in more concrete terms, 77% of the material discharged from the pulper was ready for washing.

Cooking

Table II and Fig. 2 show the stock composition before and after cooking in stationary cookers equipped with circulating systems. The data represent an average of tests on all cookers in the system.

A visual inspection of the fractions from the stock after cooking revealed that the portion passing through the 14-mesh screen was defibered and deinked. In addition, about 50% of the fraction retained on the 14-mesh screen was made acceptable for washing. In terms of percentages, approximately 98% of the cooked stock was completely defibered and deinked. Only the 10-mesh fraction and part of the 14-mesh fraction were not acceptable.

A comparative analysis of the data in Tables I and II revealed the following fact. The increase in the fine and very fine portions produced from the coarse portion during cooking was less than the fine and very fine portions produced during the initial disintegration of an equal amount of waste paper. Therefore, it can be assumed that the cooking process does not produce an undue amount of fines.

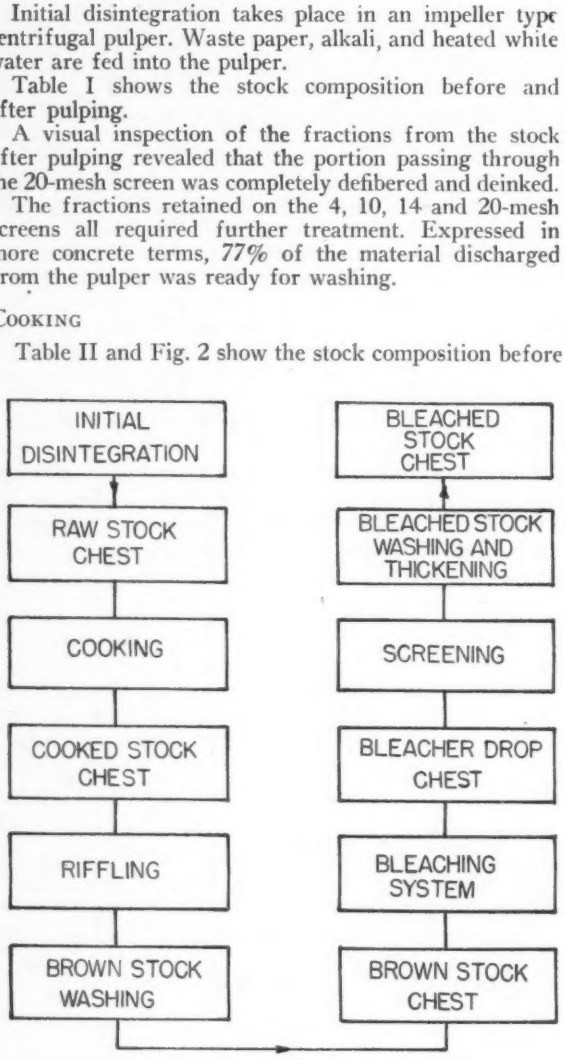


Fig. 1
Flowsheet of Deinking System

TABLE I.—EFFECT OF PULPING WASTE PAPER IN AN IMPELLER TYPE CENTRIFUGAL PULPER

	Waste Paper Before Pulping, % *	White Water, % *	Stock After Pulping, % **
Retained on 4-mesh screen....	98.1	..	1.3
10	...	..	7.8
14	...	..	4.4
20	...	..	9.0
35	...	..	16.5
42	...	..	4.6
65	...	..	7.2
100	...	0.1	10.8
170	...	0.1	7.3
250	...	0.1	3.2
Passed through 250-mesh screen	...	1.6	27.9
	98.1	1.9	100.0
Coarse portion	98.1	..	22.5
Medium portion	...	0.1	39.1
Fine portion	...	0.2	10.5
Very fine portion	...	1.6	27.9
	98.1	1.9	100.0

* In per cent of total suspended solids furnished.
** In per cent of suspended solids discharged from pulper.

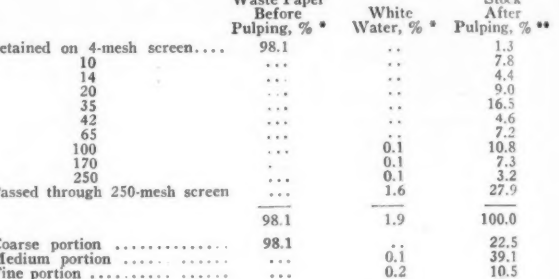


Fig. 2
Effect of Cooking Pulped Waste Paper

Riffling

The cooked stock is diluted with white water and riffled to remove heavy material and coarse trash. The addition of white water increased the medium, fine and very fine portions by approximately 0.7, 2.1 and 11.0% respectively.

Brown Stock Washing

The cooked stock is washed on couch type multiple cylinder unit washers. The effluent from the washers is discharged into two systems, one portion going to waste and the other to deinking white water system.

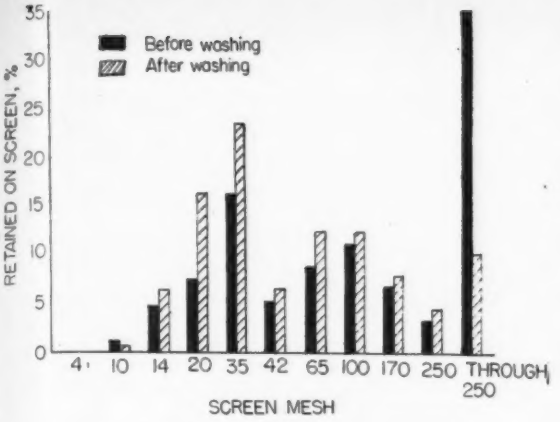


FIG. 3
Effect of Brown Stock Washing

Table III and Fig. 3 show that the fine and very fine portions were decreased by approximately 31% and the medium portion by 1% during washing.

TABLE II.—EFFECT OF COOKING PULPED WASTE PAPER

	Before Cooking, % *	After Cooking, % **
Retained on 4-mesh screen	1.0	0.0
10	7.9	0.3
14	5.0	3.5
20	8.7	9.1
35	16.3	18.3
42	4.7	6.7
65	7.0	8.3
100	10.6	11.8
170	7.6	8.9
250	3.0	3.5
Passed through 250-mesh screen	28.2	29.6
	100.0	100.0
Coarse portion	22.6	12.9
Medium portion	38.6	45.1
Fine portion	10.6	12.4
Very fine portion	28.2	29.6
	100.0	100.0

* In per cent of suspended solids furnished.
** In per cent of suspended solids leaving digesters.

BLEACHING

Table IV and Fig. 4 show the stock composition before and after bleaching. The data represent an average of tests on all units of the system.

The coarse portion was reduced and the medium, fine, and very fine portions increased. The increase of the fine and very fine portions may have been due to the removal of lignin and the resulting disintegration of coarse fiber bundles.

SCREENING

Table V and Fig. 5 show that when the bleached stock was screened, the proportion of coarse material was decreased and medium and fine increased. This indicated that some coarse material was removed in the tailings from the screens.

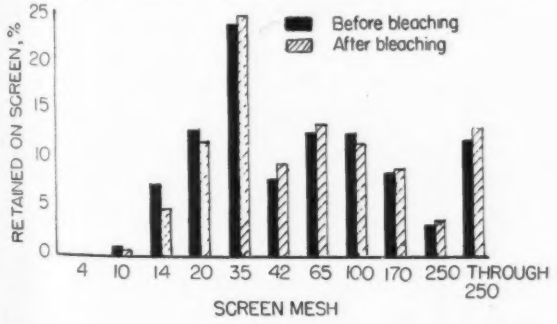


FIG. 4
Effect of Bleaching

TABLE III.—EFFECT OF BROWN STOCK WASHING

	Before Washing, % *	Average Effluent, % *	After Washing, % *	After Washing, % **
Retained on 4-mesh screen	0.0	...	0.0	0.0
10	1.1	...	1.1	0.5
14	4.7	...	4.7	6.5
20	7.4	...	7.4	16.1
35	16.1	...	16.1	23.6
42	5.3	...	5.3	6.4
65	9.0	0.2	8.8	12.3
100	11.1	0.9	10.2	12.3
170	6.8	1.9	4.9	7.8
250	3.5	1.2	2.3	4.2
Passed through 250-mesh screen	35.0	27.8	7.2	10.3
	100.0	32.0	68.0	100.0
Coarse portion	13.2	0.0	13.2	23.1
Medium portion	41.5	1.1	40.4	54.6
Fine portion	10.3	3.1	7.2	12.0
Very fine portion	35.0	27.8	7.2	10.3
	100.0	32.0	68.0	100.0

* In per cent of suspended solids before washing.
** In per cent of suspended solids after washing.

BLEACHED STOCK WASHING

The bleached stock is washed and thickened on couch type multiple cylinder unit washers. Screen analysis did not show any conspicuous change in stock composition, although some fine and very fine material was found in the effluent from the washers.

TABLE IV.—EFFECT OF BLEACHING

	Before Bleaching, % *	After Bleaching, % **
Retained on 4-mesh screen	0.0	0.0
10	0.7	0.3
14	7.1	4.4
20	12.8	11.6
35	23.5	24.2
42	7.8	9.3
65	12.5	13.3
100	12.4	11.3
170	8.4	9.0
250	3.1	3.6
Passed through 250-mesh screen	11.7	13.0
	100.0	100.0
Coarse portion	20.6	16.3
Medium portion	56.2	58.1
Fine portion	11.5	12.6
Very fine portion	11.7	13.0
	100.0	100.0

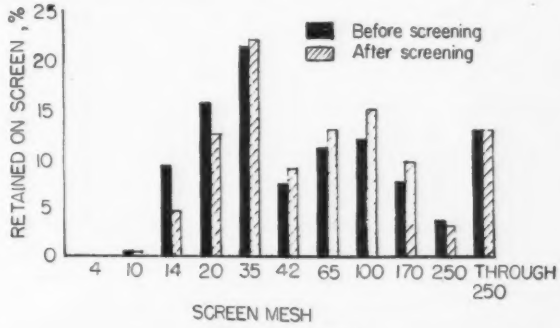
* In per cent of suspended solids entering bleaching system.
** In per cent of suspended solids leaving bleaching system.

EFFLUENTS AND WHITE WATER

Table VI and Fig. 6 show the compositions of the effluents and the white water of the system. There was virtually no coarse material in any of them. Considerable medium, fine, and very fine material was reused by diverting some effluents to the white water system. The material, which went to waste, contained approximately 60% ash.

ASH TESTS

The results of ash tests in Table VII show that cook-



Effect of Screening
FIG. 5

ing loosened inorganic material from the fibers, that washing removed inorganic material from the fractions and that bleaching removed or dissolved inorganic material. Furthermore, the fractions in the waste effluent had a higher ash content than the corresponding fractions in the washed and unwashed stock.

Canadian Standard Freeness and Fiber Length Index

Table VIII shows the change in Canadian standard freeness and fiber length index (4) as the stock progressed through the system.

The changes were caused by the gradual removal of filler and fines.

Summary

1. The survey shows that 77% of the deinking and defibering was accomplished during initial disintegration and 21% during subsequent cooking.

2. The impeller type centrifugal pulper is an efficient piece of equipment for initial disintegration considering the work done and the power and steam required.

3. The cooking operation in stationary cookers equipped with circulating systems did not produce an undue amount of fines.

4. The washing operation removed mostly fine and very fine material of high ash content.

5. Bleaching seemed to develop some medium fine and very fine material from the coarse portion of the stock, possibly due to the delignification of coarse fiber bundles.

6. Screening decreased the proportion of coarse material in the stock. The greatest decrease occurred in those fractions which were not completely defibered after cooking.

7. Bleached stock washing as well as thickening did not produce any changes in the stock that were determinable by screen analysis.

8. The fine and very fine material in the system was present at the start of deinking, was introduced with the white water, or resulted from the delignification of coarse fiber bundles.

9. The waste effluent from the brown stock washers had the lowest fiber content and the highest ash content of all the effluents in the system. The fractions from the effluent consisted of more than 98% fine and very fine material. These fractions had a higher ash content than the corresponding fractions in washed or unwashed stock.

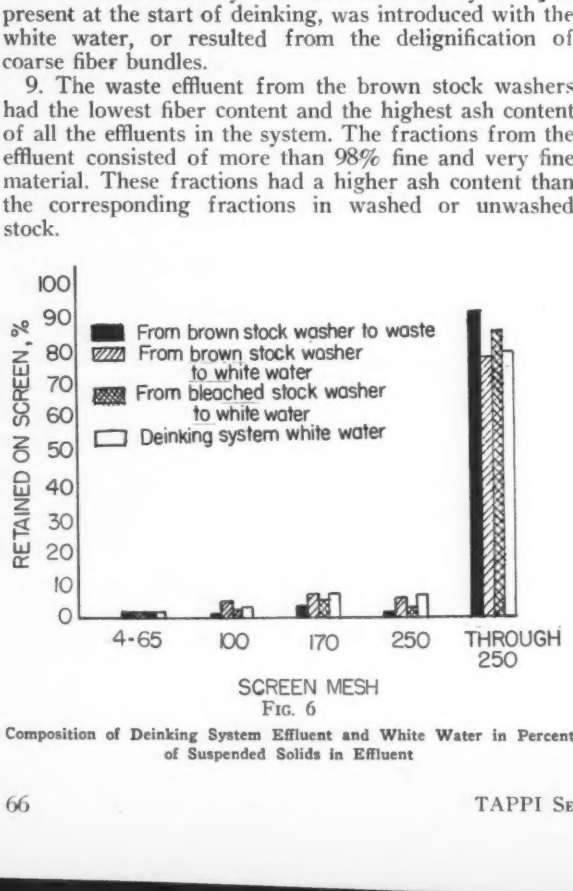


FIG. 6

Composition of Deinking System Effluent and White Water in Percent of Suspended Solids in Effluent

TABLE V.—EFFECT OF SCREENING

	Before Screening, % *	After Screening, % **
Retained on 4-mesh screen	0.0	0.0
10	0.2	0.2
14	9.1	4.4
20	15.3	12.2
35	21.4	21.9
42	7.4	8.7
65	11.0	12.1
100	11.7	15.0
170	7.3	9.3
250	3.6	3.2
Passed through 250-mesh screen	13.0	13.0
	100.0	100.0
Coarse portion	24.6	16.8
Medium portion	51.5	57.7
Fine portion	10.9	12.5
Very fine portion	13.0	13.0
	100.0	100.0

* In per cent of suspended solids entering screens.
** In per cent of suspended solids in accepted stock.

TABLE VI.—COMPOSITION OF DEINKING SYSTEM EFFLUENTS AND WHITE WATER

	From Brown Stock Washers to Waste, % *	From Brown Stock Washers to White Water, % *	From Bleached Stock Washers to White Water, % *	Deinking System White Water, % *
Retained on 4 to 65-mesh screens	0.4	1.2	1.1	1.1
100	0.9	6.3	3.1	3.7
170	4.9	9.1	5.3	9.1
250	2.6	6.1	3.5	6.3
Passed through 250-mesh screen	91.2	77.3	87.0	79.8
	100.0	100.0	100.0	100.0
Coarse portion	0.0	0.0	0.0	0.0
Medium portion	1.3	7.5	4.2	4.8
Fine portion	7.5	15.2	8.8	15.4
Very fine portion	91.2	77.3	87.0	79.8
	100.0	100.0	100.0	100.0

* In per cent of suspended solids in effluent.

TABLE VII.—ASH CONTENT OF STOCK AND FRACTIONS AT DIFFERENT POINTS IN THE SYSTEM

	Ash Content of Material from					
Material	Stock Before Cooking, %	Stock After Cooking, %	Brown Stock Before Washing, %	Brown Stock After Washing, %	Waste Effluent from Borwn Stock Washers, %	Bleached Stock After Washing, %
Stock as a whole	17.4	17.5	18.7	2.8	59.5	2.3
Retained on 4-mesh screen	13.4	...	...	...	...	...
10	14.8	11.7	...	...	...	...
14	6.7	4.1	2.4	1.9	...	1.4
20	3.1	2.8	2.4	1.6	...	1.2
35	2.7	3.3	2.0	1.6	...	1.4
42	3.5	2.6	2.3	2.0	...	1.4
65	3.0	2.9	2.2	2.4	...	1.7
100	3.0	2.7	2.4	1.9	7.0	2.5
170	5.6	3.5	3.1	2.8	5.2	2.5
250	6.8	5.0	4.7	4.0	7.2	3.8
Passed through 250-mesh screen	53.6	44.2	48.7	25.9	57.3	20.0

TABLE VIII.—CHANGE IN CANADIAN STANDARD FREENESS AND FIBER LENGTH INDEX

	Canadian Standard Freeness, ml.*	Fiber Length Index **
Stock after cooking	195	0.532
Stock after washing	375	0.800
Stock after bleaching	450	0.880
Stock after washing	450	0.880

* Test made on stock adjusted to pH 7.0.
** Based on 10 grams of moisture-free stock.

10. The effluents diverted to the white water system for reuse are those richest in fiber and lowest in ash content.

The authors wish to express their appreciation to the Division of Research of the International Paper Company for their furnishing the pulp classifier and information on pulp classification.

Literature Cited

1. Bailey, H. P., and Nadelman, A. H., *Tech. Assoc. Papers* 29: 164-165 (June, 1946).
2. Bailey, H. P., and Nadelman, A. H., *Paper Trade J.* 125, No. 2: 43-45 (July 10, 1947).
3. Cowles, E. G., *Paper Trade J.* 106, No. 8: 192-202 (Feb. 20, 1936).
4. de Montigny, R., and Zborowski, P., *Tech. Assoc. Papers* 29: 220-232, and 226-232 (June, 1946).
5. O'Donoghue, R., *Paper Ind.* 22, No. 9: 911-916 (Dec., 1940).

A Progress Report on the Testing Program of the Shipping Container Institute*

By W. B. Lincoln, Jr. [1]

Abstract

The Shipping Container Institue was organized for the purpose of conducting research and accumulating technical data on all phases of the manufacture and use of fiber shipping containers. This report is concerned with investigations which have been in progress for the last couple of years on the performance of fiber boxes. Performance tests have been developed within the industry to evaluate the ability of the container to perform satisfactorily in service. No one test is adequate and the author stresses that all results should be concerned with the properties of a loaded cantainer in relation to the commodity to be shipped.

A preliminary report is given of the results of a shipping test program. Reported causes of damage to shipments are presented together with a breakdown showing the causes considered to be primarily the responsibility of the boxmakers, shippers, and railroads, individually and collectively.

A shipping code is recommended, the adherence to which will reduce the number of claims now being made.

For many years technicians in the fiber box industry have felt the need for some central technical organization in which members could meet on common ground and work out technical problems peculiar to the industry and conduct research programs beyond the scope practical for the individual company.

Recent trends and the technical problems of wartime developments highlighted the demand for such an organization. This has resulted in a general realization of the problem on the part of the industry management.

The Shipping Container Institue was organized to fill this gap. It was formed solely and exclusively for the purpose of conducting research and accumulating technical data on all phases of the manufacture and use of fiber shipping containers. It is believed that there has been sufficient publicity regarding the aims and programs of this organization to make it unnecessary to go into any detailed discussion of them in a meeting of this character. The author will, therefore, confine the balance of his remarks to the results of certain of the investigations which have been in progress for the last couple of years and discuss some of the questions which have been raised by this work.

Performance Tests

To determine how good a box must be or how good a box is implies testing procedures. For a considerable number of years there has been an increasing amount of discussion of "performance tests", their application to the control of quality, and the solution of packing problems. This term has been very loosely used and like too many terms, is not definitive in character. All of the tests that are used evaluate some performance characteristics so it is important that just exactly what is meant is understood.

As the term "performance test" is generally used it implies the evaluation of the ability of a container to perform satisfactorily in service. To do this properly, to this author's mind, means determining whether the *loaded container* has the ability to meet the hazards of the test as distinguished from tests which evaluate the empty box or fabricated board only. This includes questions of type of commodity and its design and many aspects other than the container as such. For greatest value performance tests must be tied in with the commodity being shipped and requirements must be established in keeping with the needs of each particular commodity and the distribution methods used. Packing requirements for items susceptible to damage by compression could legitimately include compression performance requirements. Those subject to breakage could be required to withstand tests to determine the adequacy of the cushioning provided, etc. Only in this way can the effects of arrangement design and the nature of the contents be given full consideration. There is no one test that will give all answers as to the adequacy of any and all packs.

Foundation for Sound Standards

The establishment of sound performance tests and standards for these tests must be based upon a foundation which involves:

1. Isolation and identification of the hazards shipping containers encounter in service.
2. A determination of the degree of severity of each of these hazards, preferably stated in fundamental engineering units.
3. The necesary instrumentation studies to develop and prove the suitability of testing devices and procedures as a means of evaluating container performance characteristics using the term "performance" in the sense previously discussed.

Having the above foundation it then becomes possible to determine:

1. Characteristics and establish standards for materials, combined board, boxes and completed packs.
2. The inter-relation between these various factors.
3. The influence of fabrication practices in the box shop upon complete pack characteristics.
4. The influence of design upon complete pack characteristics.

The scope of knowledge in many of these fields consists of many bits and pieces. However, one wonders whether these bits and pieces do not consist very largely of only portions of a great many jig-saw puzzles which have been scrambled together. In other words, there are many bits of unrelated information and there are so many of the pieces lacking one cannot assemble any of the puzzles completely.

Having this unsatisfactory situation in mind, the Shipping Container Institute program has been dovetailed closely with investigations going forward under the auspices of the board groups of our industry. All of this work is being done under standardized conditions

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[1] Member TAPPI; Chairman of the Technical Committee of the Shipping Container Institute; Technical Manager of Inland Container Corporation, Indianapolis, Ind.

TABLE I.—REPORTED CAUSES OF DAMAGE

Item No.	Cause of Damage	Number Boxes Reported Damaged	Number Boxes Reported Damaged By Cause Groups	Per Cent of Total Damaged
1.	Excessive lengthwise slack	1017	1128	14.4
2.	Excessive crosswise slack	111		
	Poor Car Preparation			
3.	Nails, wire, boards, straps not removed	634	642	8.2
4.	Dirty car	8		
	Poor Arrangement of Cargo			
5.	Poor arrangement of cargo	346	491	6.3
6.	Partial layer	145		
	Inadequate Bracing			
7.	Weak or broken bracing	33		
8.	Poor design of bracing	678		
9.	Poor car door blocking	310	1158	14.8
10.	Poor bracing material	13		
11.	No bracing	124		
	Cars Needing Repair			
12.	Leaky car	499		
13.	Broken car walls	25	681	8.7
14.	Broken floor or floor racks	157		
	Rough Handling			
15.	Rough handling of car in transit		1339	17.1
16.	Rough handling during loading		176	2.2
	Miscellaneous			
17.	General crushing, rubbing and punctures		559	7.1
18.	Crushing due to stacking		263	3.4
19.	Open manufacturers joint		77	1.0
20.	Case flaps unsealed		1311	16.8
			7825	100.0
	Per cent of total boxes shipped *		0.9%	

* A total of 733,308 test boxes were in the cars covered by this tabulation.

which will permit maximum value to be obtained from the data being gathered as all of the pieces will be parts of the same jig-saw puzzle.

Hazards to Shipping Containers

In every stage of packing and shipping, containers encounter hazards. While the basic stresses and impacts can be grouped under a few rather obvious classifications, little is known even today about the relative frequency of contact with specific hazards and their real contribution to claims. The claim data developed by the railroads throw very little significant light on this subject. There have been many investigations conducted, particularly with specific commodities. These investigations, however, have had the usual shortcomings of uncoordinated work. They have been conducted independently of one another and little can be done in the way of correlating the data obtained or using them to solve similar problems elsewhere.

Realizing this situation and recognizing that an evaluation of hazards was basically fundamental in a program of this sort, the Shipping Container Institute developed its shipping test program to determine the hazards which are causing damage in shipment and the hazards which are causing claims to be filed. Also, these data will be related to laboratory evaluations of the containers and product characteristics where this later factor materially influenced the results.

What Happens to Shipments in Actual Transportation

In the work to date it has been found that approximately 0.9% of the boxes shipped were damaged in some way during shipment. Of this total, approximately 0.2% was damaged sufficiently to cause the consignee to file claims for damage with the railroads. In listing the reported causes for damage occurring during the shipment of these test cases, many different causes are found which can be classified under various appropriate headings.

Five tables showing in detail the results of this work have been prepared. All reported causes of damage have been listed in Table I. This shows the number of boxes reported damaged by specific cause, the number of boxes reported damaged arranged by cause groups and the per cent of total damaged by groups.

These data have been further broken down to show the causes of damage which are considered to be primarily the responsibility of, or at least under, a certain degree of control by the three groups concerned, namely, the boxmakers, shippers and railroads.

Table II shows the reported causes of damage considered to be primarily under the railroad's control.

Table III covers the reported causes of damage considered to be primarily under the shipper's control.

Table IV shows the reported causes of damage considered to be primarily dependent on box quality and therefore under the boxmaker's control to a degree at least.

TABLE II.—REPORTED CAUSES OF DAMAGE CONSIDERED PRIMARILY UNDER RAILROAD'S CONTROL

No.	Cause of Damage	Number Boxes Reported Damaged	Per Cent of Total Railroad Responsibility
3.	Nails, wire, boards, straps not removed	634	23.8
4.	Dirty car	8	0.3
12.	Leaky car	499	18.8
13.	Broken car walls	25	0.9
14.	Broken floor or floor racks	157	5.9
15.	Rough handling in transit	1339	50.3
	Totals	2662	100.0%
	Per cent of total damage reported	34.0	

Table V covers the reported causes of damage to which boxmakers, shippers, and railroads might have jointly contributed. This list includes items which it is difficult to say with finality are the responsibility of a single agency. However, their classification as given in preceding tables are believed to be fundamentally correct as to primary responsibility.

A careful examination of the data in the tables will, it is believed clearly indicate the most fertile causes of damage and the appropriate action to take to reduce the resulting waste.

Extensive Damage Result of Multiple Causes

Upon analyzing the detailed data on which these tables were based it became quite apparent that cars in fair to poor condition at destination were fair or poor as the result of a multiplicity of causes. On the average half of the cars arriving with their contents in good condition had no damage at all. The other half had minor damage from a single cause only, hence these good cars averaged roughly one-half damage cause per car. Fair cars averaged one and a half damage causes per car and poor cars two damage causes per car.

TABLE III.—REPORTED CAUSES OF DAMAGE CONSIDERED PRIMARILY UNDER SHIPPER'S CONTROL

Item No.	Cause of Damage	Number Boxes Reported Damaged	Per Cent of Total Shipper's Responsibility
1-2	Excessive slack in load	1128	26.4
5-6	Poor arrangement of cargo	491	11.5
7-8-9-10-11	Inadequate bracing	1158	27.2
16	Rough handling during loading	176	4.1
20	Case flaps unsealed	1311	30.8
	Totals	4264	100.0%
	Per cent of total damage reported	54.5%	

Some Damage Causes More Serious

Another point of considerable interest is that certain damage causes are more serious than others. Certain of these causes can be counted on to almost invariably result in damage to the shipment. To ignore such a cause at the time of loading is therefore practically compounding a felony. In this category it was found

that broken floor racks, while not occurring frequently, in every instance resulted in a claim being filed. Leaky cars likewise tend to produce a high incidence of claims. Actually, claims were filed on two-thirds of the recorded leaky cars. While the presence of nails, wires, boards, and straps result in wide spread damage, this cause of damage does not generally lead to serious claims. However, they occur so frequently that this group of causes leads the list in the causes of damage initiating claims. Other damage causes resulting in a high percentage of claims are excessive lengthwise slack, excessive crosswise slack, poor car door blocking, no bracing, crushing due to stacking, and rough handling of cars in transit.

Shippers and Railroads in Key Position to Reduce Claims

From a study of the number of cases damaged and the responsibility for various damage causes, it appears that the shipper and the railroads are in a position to affect the major possible reduction in claims. The boxmaker shares in this position, of course, but not so significantly as his best efforts can be completely nullified by poor shipping practices. For example, what possible change in box quality could overcome the damage resulting from careless failure to remove a projecting nail in the car wall or repair a leaky roof.

Out of approximately three quarters of a million cases shipped, a little over 7,800 cases were damaged. A third of the damaged cases were damaged as a result of leaky cars, broken car walls, broken floors and racks, general crushing and rough handling in transit; items it is believed are more controllable by the railroads than others. Fifty-four and a half per cent of the total cases damaged were damaged as a result of excessive slack in one or more directions, the presence of nails, wires, straps, etc., poor arrangement, weak or inadequate bracing or car door blocking, or no bracing at all, flaps unsealed, and related causes largely under control of the shipper.

The Boxmaker's Responsibility

Eleven and one half per cent of the total damage reported might be considered primarily dependent on box quality, although only 1% can be allocated to the boxmaker without question. In making that statement the author is not trying to evade acknowledgement of the contribution of the boxmaker. As a matter of fact, some 42.8% of the reported damage falls in the category to which boxmakers, shippers, and railroads might have individually or jointly contributed. These data are set forth in Table 5.

There is no question but what weak boxes contributed to the degree of damage sustained in many instances. Shipper responsibility, however, includes the responsibility of obtaining adequate boxes of good quality. This means that it is part of the shipper's responsibility to deal with reliable technically competent suppliers able to aid in the solution to individual problems and able to furnish adequate boxes. In so far as this is a shipper responsibility to maintain such sources of supply, the author has not hesitated to include some of these points as subject to correction by the shipper which might otherwise be considered the responsibility of the boxmaker.

TABLE IV.—REPORTED CAUSES OF DAMAGE CONSIDERED PRIMARILY DEPENDENT ON BOX QUALITY

Item No.	Cause of Damage	Number Boxes Reported Damaged	Per Cent of Total Boxmaker's Responsibility
17	General crushing, rubbing and punctures...	559	62.2
18	Crushing due to stacking.....	263	29.3
19	Open manufacturer's joint.....	77	8.5
	Totals	899	100.0%
	Per cent of total damage reported.....	11.5%	

Cars Should Provide Bracing Facilities

The question of who is responsible for what poses quite a question. For example, the shipper is blamed for poor door blocking and inadequate bracing of loads but the author has felt for a good many years that the railroads are far from blameless in this connection. It seems to him that freight cars should incorporate some form of permanently available flush door blocking as well as adjustable bulk heads which could be readily moved and fastened into position to break bulk on car loads or to segregate LCL shipments. It seems definitely unsound economically for each and every shipper to have to provide his own car door bracing, bulk heads, etc., using valuable raw materials and labor to provide what all too often proves to be an inadequate makeshift for the shortcomings in car design. This work delays the turn around of cars and when consideration is given to all of the negative aspects of the historical approach to this problem, it seems that making such accessories a permanent part of the car equipment just as are the floor racks in a refrigerator car or the blocking and bracing attachments in automobile cars would result in tremendous savings for both the railroads and shippers, not to mention the consumers who have to pay the bill eventually. Loss and damage would be greatly reduced by such equipment. Also the direct costs attending the repeated construction of makeshift substitutes through all the years of service of a car's life would undoubtedly pay for the original installation many times over. Granted the carriers are experimenting with several loading devices. Out of these experiments may come some new techniques to improve this feature of the shipping problem. It has confronted the shipper for many years and the waste continues. The problem should be solved.

Individual Commodities Have Critical Hazards

It is interesting to note that the data show conclusively that there exists what might be called, critical hazards for commodities of different types. This fact highlights the importance of making a study of the special container requirements of specific commodities and emphasizes the complexity of the problem.

In general, only two or three hazards seem to be responsible for the majority of damage encountered by the various shipments of individual products. These hazards not only differ for various classes of commodities but furthermore, hazards which create the greatest number of damaged containers are not necessarily the ones which create the greatest amount of claims although there is frequently a very close parallel. To illustrate this point of critical causes of damage the group classified as metal items, which includes automobile parts, tool boxes, metal stools, garment hangers, stoves and similar merchandise is taken. A study showed that approximately 85% of the damaged cases were the result of three hazards or causes, namely, flaps unsealed 33%, rough handling 30%, weak or broken bracing 22%. All of the claims filed, however, were the result of two hazards, only 22% being caused by lack of bracing, 78% by leaky cars.

In the case of cereal shipments, 91% of the visually damaged cases were damaged as the result of three hazards, nails, wires, boards, and straps not removed, poor car door blocking, and flaps coming unsealed. The latter cause was again not responsible for any claims. Fifty-six per cent of the claims filed, however, were

TABLE V.—REPORTED CAUSES OF DAMAGE TO WHICH BOX-MAKERS, SHIPPERS AND RAILROADS MIGHT HAVE JOINTLY CONTRIBUTED

Item No.	Cause of Damage	Number Number of Boxes Reported Damaged	Per Cent of Total
1	Excessive lengthwise slack	1017	30.4
15	Rough handling of car in transit	1339	39.9
16	Rough handling during loading	176	5.2
17	General crushing, rubbing and punctures	559	16.7
18	Crushing due to stacking	263	7.8
	Totals	3354	100.0
	Per cent of total damage reported	42.8%	

the result of damage from nails, wires, boards, and straps not removed. The balance of 44% of the claims was filed on cases damaged as a result of poor car door blocking.

Similar situations were disclosed for other commodities. It is obvious, therefore, that the peculiar characteristics of each product demand special consideration when designing packages, car loads, and car bracing or blocking. Vulnerable points must be recognized and adequately safe guarded.

Conclusion

In conclusion to summarize in answer to the question "How good must a shipping container be?" It must be good enough to assure the safe, economical and rapid handling of merchandise during storage and transportation. It will fulfill this specification only when we individually adhere to the following code.

1. Practice perfect shipping the year round.
2. Make sure the real facts are obtained concerning loss and damage sustained by the shipments made. Present claim procedures leave much to be desired on this score.
3. Remember that compliance with Rule 41 and similar carrier rules only will not assure adequate packing.
4. Study the special packing requirements of each product and suit the package to them by applying sound principles of protection as needed.
5. Remember that packing engineers should have a say during the product development stage as well as after, to the end that products will be designed so as to facilitate their economical packing.
6. Purchase containers from reliable and capable suppliers.
7. Seal containers properly.
8. Follow good carloading practices—specifically—

(a) Use clean cars, watching especially for nails, old strapping and other projections.

(b) Use cars in good repair, watching for signs of leaky roofs, broken floor or wall boards, uneven floor racks, etc.

(c) Load tightly in all directions and arrange the load properly —particularly avoiding partial layers.

(d) Brace adequately as to design, material and strength.

(e) Block car doors when necessary.

If these things are done a high percentage of the claims now necessary will be avoided and the need for stronger, more costly containers eliminated.

At some future date it is hoped that it will be possible to answer this same question with definite test specifications expressed in fundamental engineering units. When that time will come no one can predict today, however, the fiber box and board industry is definitely embarked on research programs.

Kalamazoo Valley TAPPI Discusses Pump

The Kalamazoo Valley Section of TAPPI held its second meeting of the year at the Columbia Hotel on Thursday Evening, November 4, 1948.

Approximately 75 members and guests attended the meeting. There were an exceptionally large number of engineers and men from cities outside of Kalamazoo in attendance.

The speaker for the evening was H. K. Kingsbury of the Allis-Chalmers Manufacturing Company. His talk was on Pumping in general and with specific reference to pumping of high density paper stocks. He gave a general picture of materials used in pump construction and some of the engineering features for proper maintenance. Two color films were shown at the meeting. One was on the new Stream-Barking of logs and the other was on the High Density feeders used for pumping stocks up to 10% consistency.

The December meeting of the Kalamazoo Valley Section of TAPPI will be held at the Columbia Hotel in Kalamazoo on Thursday evening, December 2, 1948.

A program on the sizing of paper has been arranged by S. Kukolich of the Lee Paper Co. The speaker for the evening will be W. S. Wilson of the Monsanto Chemical Co. who has chosen the subject "Sizing Determinations and the Wet Break Test." In addition to the talk there will be a variety of instruments used by various mills for determining the degree of sizing of paper and paperboard.

This subject is one that should interest the practical papermakers as well as the technical men in the industry because this is something that all are vitally concerned with and presents a constant problem to everyone in the industry.

New England TAPPI Meets at Worcester

The New England Section of the Technical Association of the Pulp and Paper Industry met jointly with the New England District of the A.S.T.M. at the Sheraton Hotel, Worcester, Mass., on Friday, November 19. About 150 attended. R. H. Doughty of the Fitchburg Paper Co. presided as chairman.

William R. Willets of the Titanium Pigment Corp. and Lewis R. Reid, assistant general purchasing agent for the Metropolitan Life Insurance Co., presented a joint paper on "The Philosophy of Testing."

George P. Wadsworth, associate professor of mathematics at the Massachusetts Institute of Technology, presented a paper on "Practical Quality Control."